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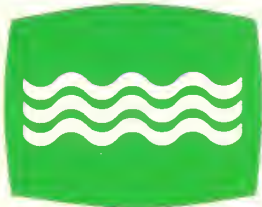
The Journal of the Indiana State Medical Association

July 1991

Vol. 84, No. 7

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VIDEO DISPLAY TERMINALS: POTENTIAL HEALTH EFFECTS OF OFFICE AUTOMATION



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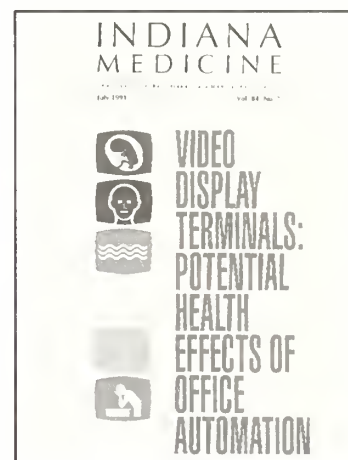
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Cover design by Diane Alfonso,
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PICI includes peer review services in liability coverage

The Physicians Insurance Company of Indiana (PICI) has changed its medical professional liability insurance contract to include coverage for any claims arising out of the insured physicians' participation in a peer or utilization review process. PICI broadened its policy provisions because of the growing involvement of physicians in peer and utilization review processes. With the rapid expansion of managed health care plans, more physicians are being asked to serve on peer and utilization review committees.

Generic substitutions required for Medicare, Medicaid patients

The new Indiana budget will require pharmacists to substitute generic drugs for Medicare and Medicaid patients unless the physician writes "brand medically necessary" on the prescription. The law took effect July 1.

Previously pharmacists were allowed, but not required, to substitute the generic equivalent of a drug unless the physician wrote "brand medically necessary" on the prescription. Under the new law, pharmacists will not be allowed to dispense the brand drug unless the physician is contacted and gives approval. Physicians who give such approval over the phone will then be required to mail in the revised prescription.

Patients Compensation Fund surcharge increase delayed

The increase in the Patients Compensation Fund surcharge to 150% will be delayed. The Indiana Department of Insurance had indicated that it could go into effect as early as July 1. The date it will become effective remains unclear. The delay represents a "good news, bad news" scenario for physicians. It means physicians will not have to pay as soon, but a lengthy delay may mean the surcharge, when implemented, will be higher than 150% to offset the current and projected shortfall in the fund. The ISMA will continue to monitor the situation.

ISMA forms Drug Utilization Review Committee

In response to the Omnibus Budget Reconciliation Act of 1990, the ISMA has formed a Drug Utilization Review Committee to make policy implementation recommendations to Indiana's DUR board. The committee, which met June 12 to review the federal law and its requirements, is comprised of four ISMA physicians: Debbie Allen, M.D.; Richard Reedy, M.D.; Ed Ross, M.D.; and John Wernert, M.D.

OBRA '90 requires each state to have a drug use review program for covered outpatient drugs in effect by Jan. 1, 1993. These programs will assure that prescriptions for drugs under Medicaid are appropriate, medically necessary and not likely to cause adverse medical results. □

■ from the museum

Two encouraging events recently occurred at the Indiana Medical History Museum on the same day. Early in the morning, the organization learned that it was one of seven Indiana museums and one of two Indianapolis museums receiving an Institute of Museum Services General Operating Support Grant. Other grantees include The Children's Museum, Fort Wayne Museum of Art, Greater Lafayette Museum of Art, Sheldon Swope Gallery in Terre Haute, Monroe County Historical Society and Fort Wayne Children's Zoo.

The grants are awarded after a nationwide competition evaluates all aspects of the museum's operations. Of the 1,390 museums that applied for these grants, only 432 received them. The museum professionals who reviewed these applications reported that nearly 90% of the applicant museums were meeting or exceeding rigorous standards of museum operations. According to Susannah Simpson Kent, director of the Institute of Museum Services, grant recipients "demonstrate excellence in all areas of museum operations." Museums are not judged on the size of their bud-

gets or needs, but rather on how well they use the resources they have. In the museum community, this highly competitive monetary award carries great prestige. Recipients are recognized as leaders in their field.

The Institute of Museum Services provides the only federal source of general operating support for our nation's museums. Grant recipients include museums with only one staff person to those with more than 2,000; budgets range from less than \$20,000 to more than \$70 million. All types of museums receive awards. Award amounts equal 10% of the museum's operating budget, with a maximum of \$75,000.

The Indiana Medical History Museum will use the \$7,200 grant to develop programs for school children, self-guided tours of the museum and exhibits on the history of health care. The grant also will be used to purchase supplies and materials for the care and conservation of its collection of more than 15,000 medical and health-related artifacts.

Later that day, another event occurred that reinforced the museum's educational potential in the minds of the staff. Two boys from Indianapolis' near westside

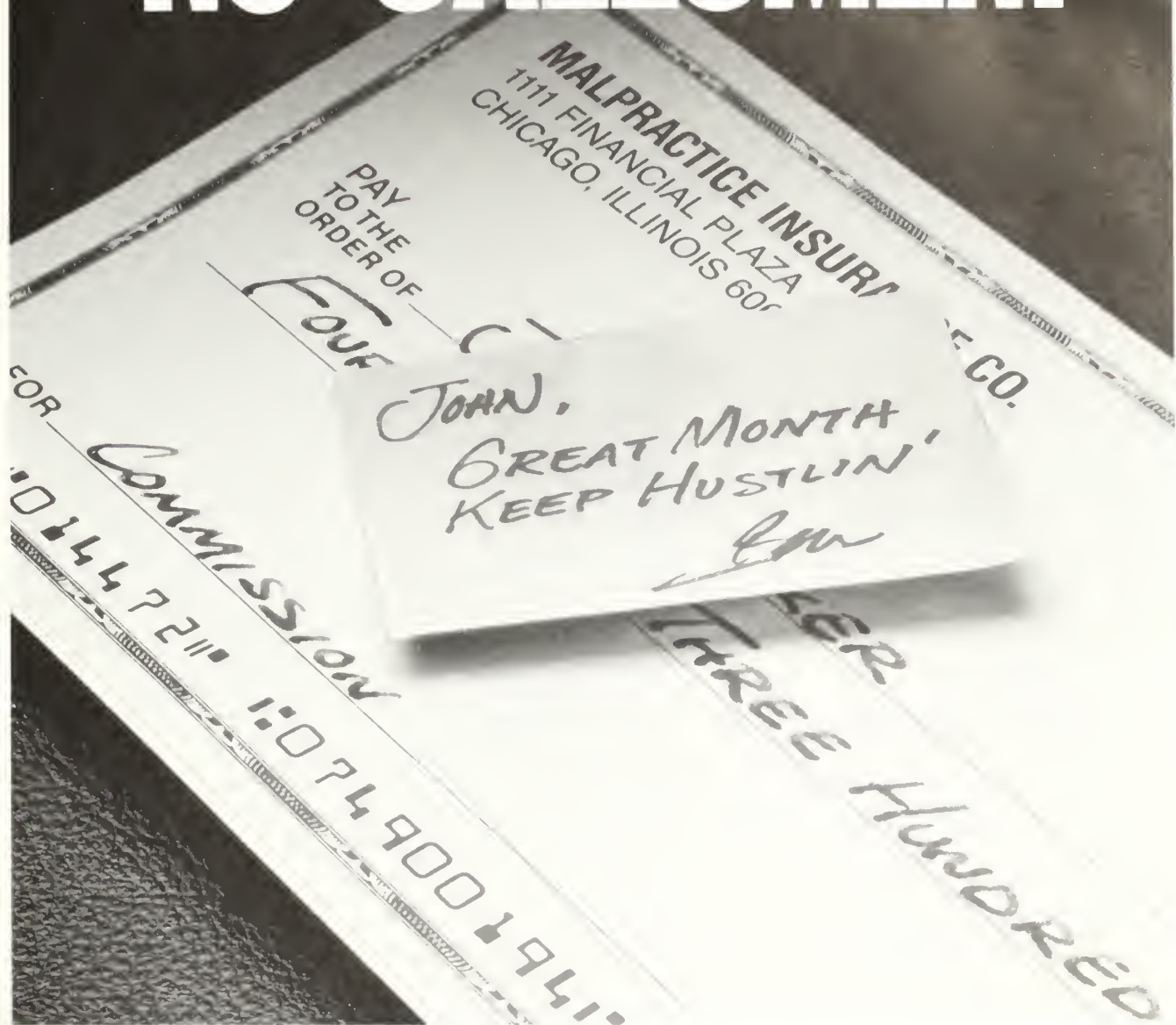
toured the museum. The neighborhood is a depressed area; few, if any, of the children aspire to attend college, let alone medical school. For one of the boys, it was his third visit within the past several months. He explained that he was fascinated by the museum, and each time he learned a little more about medicine and its history. He also said he now wants to become a physician so he can help people. That boy's visit, his interest in the museum and his new career goal reaffirm that the organization is beginning to meet its educational mission to the community. Perhaps with the Institute of Museum Services grant and the help of individual donors, the museum will be able to expand its educational services to challenge the minds of the younger generation.

Other museum news

The exhibit "Great Medical Discoveries" will be displayed at the museum's changing exhibit gallery until Aug. 30. The museum entrance is located at 3045 W. Vermont St., adjacent to Central State Hospital, in Indianapolis.

For more information, call (317) 635-7329. ■

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■ what's new

American Biogenetic Sciences Inc. (ABS), based at the University of Notre Dame, has developed a new diagnostic aid designed to help prevent heart attacks and strokes. The Cadkit, approved for use by the U.S. Food and Drug Administration, measures levels of fibrinogen in patients' blood. It is expected to be used in routine physical examinations in men older than 35 and in post-menopausal women and in the monitoring of fibrinogen levels during clot-dissolving therapy.

The **Boehringer Mannheim Corp.** has introduced the Accu-Chek Easy blood glucose monitor, a non-wipe, portable meter that cuts the time traditionally needed for self-monitoring tests by more than half. The meter features a memory function that automatically stores 30 blood sugar levels and uses a high-tech programming chip that is packaged with each new vial of test strips and snaps into the monitor.

The **American Hospital Association** has published *Substance Abuse Services: A Guide to Planning and Management*. The book identifies the major issues essential to successful program devel-

opment and provides guidelines to planning new services and implementing key management strategies to ensure program viability. Also included is information on how to address employee substance abuse problems and an assessment of the reimbursement policies of major payers. Members can order the book from American Hospital Association Services, Inc., P.O. Box 92683, Chicago, IL 60675-2683, for \$49.95 plus \$7.95 for shipping and handling.

Lea & Febiger has released four new books: *Malignant Lymphoma: Biology, Natural History and Treatment*; *Adjuncts to Cancer Surgery*; *The Pathology of the Aging Human Nervous System*; and *Diseases of the Nose, Throat, Ear, Head and Neck*. To order the books, contact Lea & Febiger, 200 Chester Field Parkway, Malvern, PA 19355, 1-800-444-1785.

News of what is new in the medical supply industry is compiled from news releases. Each item published does not necessarily constitute an endorsement of a product or recommendation for its use by INDIANA MEDICINE or the Indiana State Medical Association.

Wampole Laboratories is marketing an ELISA test designed to detect IgG and IgM antibodies to *Borrelia burgdorferi*, the spirochetal organism that causes Lyme disease. The test kit uses a microwell format.

The **Joint Commission on Accreditation of Healthcare Organizations** has published a monograph that illustrates how the commission's recommended indicators for obstetrical care can be used by hospitals to improve their quality of patient care. *Examples of Monitoring and Evaluation in Obstetrics and Gynecology* is designed to help hospitals meet the commission's standards as they apply new evaluation tools in their quality assessment and improvement activities. To order, call the commission's customer service center, (708) 916-5800.

The **American College of Physician Executives** has published two new books, *The Higher Ground: Biomedical Ethics and the Physician Executive* and *Health Care Quality Management for the 21st Century*. For more information, call (813) 287-2000. □



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■ cme calendar

Methodist Hospital

Methodist Hospital of Indiana will sponsor the following courses:

- Aug. 2-3** - Fourth Annual Immunological Obstetrics Symposium, Methodist Hospital, Petticrew Auditorium, Indianapolis.
- Sept. 14** - Healthcare for the Homeless and Poor, State Board of Health.
- Sept. 27-28** - Child Neurology Getaway, Hueston Woods State Park Lodge, Ohio.
- Oct. 3** - Brief Cognitive Therapy: Behavioral Care of the Future, Westin Hotel, Indianapolis.
- Oct. 11** - Diabetes Update, Omni Severin Hotel, Indianapolis.
- Oct. 21-22** - AmbuQual Users Conference, Days Inn at the Airport, Indianapolis.
- Nov. 1-2** - Advanced Cardiac Life Support Course, Methodist Hospital, Wile Hall, Indianapolis.
- Nov. 6** - Practical Topics in the Care of the Elderly: Lester Bibler Day, Methodist Hospital, Petticrew Auditorium, Indianapolis.
- Nov. 15-16** - Advanced Trauma Life Support Course,

Methodist Hospital, Wile Hall, Indianapolis.

For more information, call Dixie Estridge, (317) 929-8215.

Community Hospitals Indpls.

Community Hospitals Indianapolis will sponsor the "Second Annual Cardiovascular Bridges to the Future: Management Strategies for the Primary Care Practitioner" Sept. 14 at the Radisson Plaza Hotel in Indianapolis.

Keynote speakers include Dr. Gary Becker, Rear Admiral Donald Sturtz and Dr. Peter Kudenchuk. For more information, call Donna Grahn, (317) 355-5714.

Indiana University

The Indiana University School of Medicine will sponsor these courses:

- July 18** - Clinical Problems and Solutions in Ovarian Cancer, Westin Hotel, Indianapolis.
- Aug. 15-17** - Geriatric Summer Symposium, University Place Conference Center and Hotel, Indianapolis.
- Aug. 16-17** - Vascular Surgery Course, site to be announced.
- Sept. 6** - Infectious Disease Symposium, site to be announced.
- Sept. 11** - Perinatal Meeting, University Place

Conference Center and Hotel, Indianapolis.

- Sept. 27** - Gastroenterology Update and Gut Club Meeting, University Place Conference Center and Hotel, Indianapolis.
- Sept. 28** - Management of Hypercholesterolemia, University of Notre Dame campus, South Bend.
- Oct. 18-19** - Family Practice Update in Cardiology: Emphasis on Office Practice, Krannert Institute of Cardiology, Indianapolis.

For more information, call Sheryl King, (317) 274-8353.

University of Michigan

The University of Michigan Medical School will present the following CME courses:

- July 28-31** - 17th Annual Advances in the Management of Infectious Diseases, Grand Hotel, Mackinac Island, Mich.
- Aug. 10-11** - Endocrinology and Diabetes Update, Grand Traverse Resort Village, Grand Traverse Village, Mich.

For additional information, call Julie Jacobs, (313) 763-1400. ■

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Video display terminals: Potential health effects of office automation

Guy F. Perry, M.D.
Indianapolis

The past decade has seen a veritable explosion in technological advances in office automation. The clerical work force has gone from a typing and filing profession to an increasingly sophisticated profession that must use an array of computerized equipment. With the change has come an increasing awareness of the possible adverse health effects of use of one of the most common pieces of automation, the video display terminal (VDT).

Newspaper publishers, banking, government and the military, brokerage houses and manufacturing plants are some of the most notable industries that have relied increasingly on the use of VDTs for information processing. As we change from a manufacturing society to an information society, the use of VDTs will continue to increase.^{1b} According to the Center for Office Technology, there were approximately 70 million VDTs in use in 1990 with possibly 100 million in use by 2000. There are between 10 million to 14 million regular users in the United States.¹ Physicians must be aware of the potential impact of the use of VDTs on their patients' health.

The VDT is similar to a television receiver because it receives

electrons emitted from a cathode. The electrons are impinged on the inner surface of the screen that is lined with phosphors where the energy is converted to visible light. The signals that trigger the energy are activated by a keyboard connected through a computer that is attached to the VDT.²

Areas of concern expressed about the use of VDTs are reproduction, dermatitis, radiation, vision, ergonomics and stress.^{15,20}

Various concerns were raised in the late 1970s about clusters of spontaneous abortions that occurred in VDT operators employed by newspaper publishers. Various studies have not shown an increased risk of spontaneous abortions or birth defects in VDT operators.^{3-5,21}

A recent study performed at Kaiser Permanente in California showed that women who used VDTs more than 20 hours per week had a significant increase in risk of spontaneous abortion as compared to those who operated VDTs for fewer than 20 hours per

week during the first trimester of pregnancy.⁶ The authors concluded there may be confounding factors involved in determining the outcomes and that larger cohort studies are needed. It is difficult to determine risk because there is a 10% to 20% background risk of spontaneous abortion, as well as a 2% to 4% risk of all live births having a congenital malformation.

Cases of facial dermatitis have been described in VDT users.⁷ The minor inflammation that occurs within two to six hours after exposure is related to an electrostatic field that is generated and is related to lack of humidity in the air. Increasing the humidity in the air and reducing the static electric charge induced by carpeting help reduce the risk of this condition.

While the main function of the VDT is to emit visible radiation, various other types of electromagnetic radiation are emitted.^{2,8,21} A major concern has been expressed about the potential risk

Abstract

The use of video display terminals (VDTs) has increased dramatically in the past 10 years and is projected to increase. Particular concerns related to the use of VDTs include vision, radiation, reproduction, dermatitis, stress and ergonomics. This article summarizes the current literature related to possible effects of VDT use and health.

of ionizing radiation to VDT users. The reproductive risks of ionizing radiation are well-known and include increased risk of spontaneous mutation, teratogenesis, sterility and increased risk of leukemia in the offspring. Numerous studies have been performed to determine the extent of ionizing radiation detected at the surface of VDTs. Although there is no national performance standard for VDTs, the measured levels of ionizing radiation are well below the occupational exposure standard. Studies also have been performed to determine the levels of ultraviolet, infrared, radio-frequency (RF) and extremely low-frequency (ELF) radiation. These levels also are well below levels thought to cause adverse health effects.¹⁹

One of the earliest complaints about VDTs concerned visual abnormalities.¹⁷ Much attention has been given to possible connection to cataract formation. This concern was raised when two newspaper employees in the late 1970s developed cataracts while working with VDTs. Reports of cataract formation surfaced in other newspaper offices, but when compared to non-VDT users, the National Institute for Occupational Safety and Health (NIOSH) concluded there was no definite proof of causation. The National Research Council⁹ reviewed reported cases of cataract formation in VDT users and could not conclusively link the two.

Scandinavian investigators have reviewed epidemiological and experimental data and have concluded that VDT exposure does not lead to cataract formation.¹⁰ Studies in this area are complicated by the fact that cataract formation is naturally occurring in the general population.

Cataracts also occur naturally in 4% of the population between ages 35 and 45, an age group that includes frequent users of VDTs. Radiation-induced cataracts require much more radiation exposure than that found in VDT use.¹¹

Other complaints about vision include eye strain and visual blurring. Factors that have been associated with these complaints are prolonged staring at the copy page, screen glare, inadequate room illumination, poor screen image quality and impaired visual acuity and accommodation. Some VDT users worry that eye damage will occur with the above eye

complaints. The American Academy of Ophthalmology states that the above mentioned eye discomfort will not cause permanent ocular damage.¹²

The area that has received the most attention regarding health effects of VDT use is related to ergonomics.¹³ Ergonomics deals with the design and organization of the workplace and their impact on the health and productivity of the worker. VDT workers have developed more musculoskeletal-related complaints than other non-VDT office workers. Workers complain of arm, neck, shoulder and low back pain with prolonged

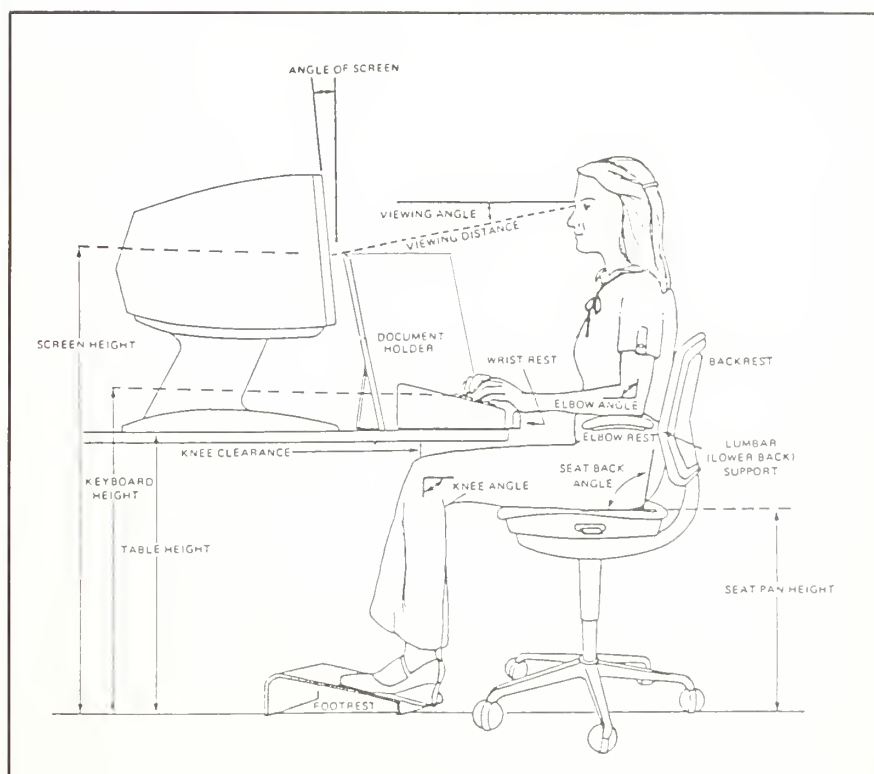


Figure: This diagram shows factors to consider when designing work space for VDT users. (Modified with permission from Dickerson OB, Baker WE. Practical ergonomics and work with video display terminals. In: C Zenz, ed. *Occupational Medicine - Principles and Practical Applications*. 2nd ed. Chicago, Ill: Yearbook; 1988:477.)

sitting in front of a terminal. They are less likely to move around and are more sedentary than before VDT use. Finger paresthesias also can occur.

While poor posture has been implicated with many of the complaints, work place design issues should be addressed (*Figure*). Is the work desk or table at the appropriate height for the work to be performed? Is there appropriate clearance for the thighs? Is the VDT at right angles to windows and light? Is the screen angle the appropriate distance below the line of sight (approximately 10° to 20° is appropriate)? Is the document holder at the same height and distance as the screen? Does the screen tilt up and down and side to side to deflect glare? Is the keyboard detachable from the screen, allowing for minimal flexion-extension at the wrist? Is the chair comfortable for use with the appropriate adjustable lumbar support? Does the chair allow for motion of the seat up and down or forward and backward to allow for the feet to rest comfortably on the floor or on a foot rest? Is the front edge of the chair curved to eliminate excess pressure in the popliteal area? More and more office furniture and computer manufacturers are designing equipment with ergonomic concerns in mind.¹⁸

The increased use of VDTs in the workplace has been implicated in increased levels of stress.¹⁴ There appears to be less interaction with other workers than before the use of VDTs. Prolonged sitting with keystroke monitoring is an aggravating factor. Boring, repetitive work that particularly is perceived as excessive and beyond the employee's control is conducive to stress formation.

The fear of new technology also aggravates the situation. Periodic rest breaks are advised, but there is no unanimity of opinion concerning the frequency or length.

The NIOSH recommends: "Continuous work with VDTs should be interrupted periodically by rest breaks or other work activities that do not produce visual fatigue or muscular tension. As a minimum, a break should be taken after two hours of continuous VDT work, and breaks should be more frequent as visual, mental and muscular burdens increase."

Legislation has been proposed and enacted in various states that mandates various vision exams and the frequency and duration of rest breaks. Even with the lack of clear adverse health effects, political pressure will continue in this area.

Conclusion

There is no clear cut radiation or reproduction risk to VDT operators. The levels of radiation that have been measured are well below levels known to cause cataracts, birth defects or spontaneous abortions. The adverse health effects are most likely ergonomic in origin, with job-related stress an aggravating factor. The type and context of the job being performed may be as much to blame as the equipment. □

The author is director of Occupational Medicine Education and director of the Occupational Medicine Residency Program at Methodist Hospital in Indianapolis.

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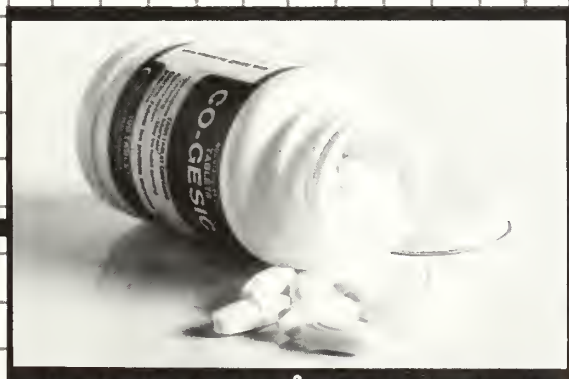
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Mary Edwards, M.D.
Richard Smith, M.D.

Central nervous system (CNS) involvement in acquired immunodeficiency syndrome (AIDS) is well-recognized. Most series report that approximately one-third of all AIDS patients develop neurologic complications.^{1,3} We recently reviewed the neuroradiologic findings in 84 AIDS patients seen at the Indiana University Medical Center. Forty-eight of 84 patients had abnormal findings on neuroimaging studies. The most common abnormal finding was atrophy, the only abnormality in 24 patients. Focal lesions were identified in 14 patients, but a diagnosis was established in only nine.

This article will present the neuroradiologic manifestations, both infectious and neoplastic, of CNS disease in AIDS with examples from the cases we have reviewed.

CNS infection

Toxoplasmosis – *Toxoplasma gondii* is the most common organism found in AIDS-related CNS infection, representing 13.4% of cases in one series⁴ and one-third in another.⁵ The characteristic computed tomography (CT) appearance is that of multiple ring enhancing lesions, frequently located in the basal ganglia or other surgically inaccessible areas.⁶ Magnetic resonance imaging (MRI) demonstrates multiple discrete high signal foci that are mostly heteroge-

neous, have well-circumscribed margins⁷ and are enhanced by gadolinium (*Figure 1*).

In addition to neuroimaging, blood and CSF serology are helpful in establishing the diagnosis. Pyrimethamine and sulfadiazine in combination are used to treat CNS toxoplasmosis, and the prognosis is usually favorable.⁸ Evaluation of an AIDS patient with deteriorating mental status, fever and persistent headaches should include a neuroimaging study. Most authors agree that MRI is the best neuroimaging procedure for the radiologic evaluation of AIDS patients with neurologic illness.⁹

Cytomegalovirus (CMV) – CMV is a less frequently encountered agent in AIDS-related CNS infection. The reported CT findings range from cerebral atrophy to ring-enhancing lesions.^{5,10} The MRI appearance has been described in a few small series, and consists of nonenhancing areas of abnormal bright signal on T2-weighted images. Two of our patients, diagnosed as CMV7, had similar findings. One patient, who had CMV inclusions in the

Abstract

A retrospective review of the neuroimaging procedures of 84 patients with the diagnosis of AIDS was performed. Both computed tomography (CT) and magnetic resonance imaging (MRI) procedures were evaluated for the presence of atrophy, enhancing lesions and focal non-enhancing lesions. The imaging findings in several infectious conditions (toxoplasmosis, cytomegalovirus, papovavirus, HIV virus, tuberculosis and histoplasmosis) are described. Intracranial lymphoma, another complication of AIDS, also is discussed.

brain at autopsy, had multiple abnormalities on MRI. T2-weighted images revealed abnormal increased signal in the pons, in addition to nonenhancing, diffuse areas of increased signal in the periventricular white matter (*Figure 2*). The other patient, diagnosed with systemic CMV after virus was isolated from blood and multiple other culture sites, had a single, nonenhancing, left periventricular focus of increased signal on T2-weighted images.

CNS involvement by CMV has been difficult to diagnose since laboratory findings are usually nonspecific, and the classic "owl's eye" cells are difficult to identify at autopsy.¹¹ The authors of one series that examined 10 cases of CNS CMV proven by autopsy concluded that CT is not a sensitive imaging method in detecting CMV encephalitis and suggested that MRI be used to aid in the early detection of this infection.¹²

Progressive multifocal leukoencephalopathy (PML) – PML is characterized by progressive demyelination. The etiology is infectious, resulting from reactiva-

tion of latent papovavirus (JC). The incidence in two large series was 2% to 3%.⁴⁻⁶ CT demonstrates low density lesions within the white matter due to myelinolysis.⁷ The MRI appearance is variable, and one series that reviewed 10 cases of autopsy-proven PML reported that single, focal areas of abnormality were found in six patients, while multifocal or diffuse lesions were seen in four patients.¹³ Lesions were distributed throughout the brain, including the brain stem and basal ganglia.¹³

Clinically, PML develops insidiously and progresses rapidly until the patient's death, usually within 6 months, as effective modes of therapy are not available. Since CSF usually shows no abnormality, definitive diagnosis can be made only with biopsy. However, since a biopsy will not alter the clinical course, it is rarely performed on patients at the Indiana University Medical Center suspected of having PML.

Human immunodeficiency virus (HIV) – HIV encephalitis has become well-recognized with the

use of immunocytochemical staining and in situ hybridization for detection of HIV in the brains of AIDS patients.^{14,15} The histologic hallmarks of HIV encephalitis are microglial nodules with multinucleated giant cells. One series that examined the neuroimaging studies of 24 patients with autopsy proven HIV encephalitis reported that neither CT nor MRI enable the detection of these hallmarks.¹⁶ However, CT and MRI may reveal secondary changes that are nonspecific, including atrophy and foci of demyelination.

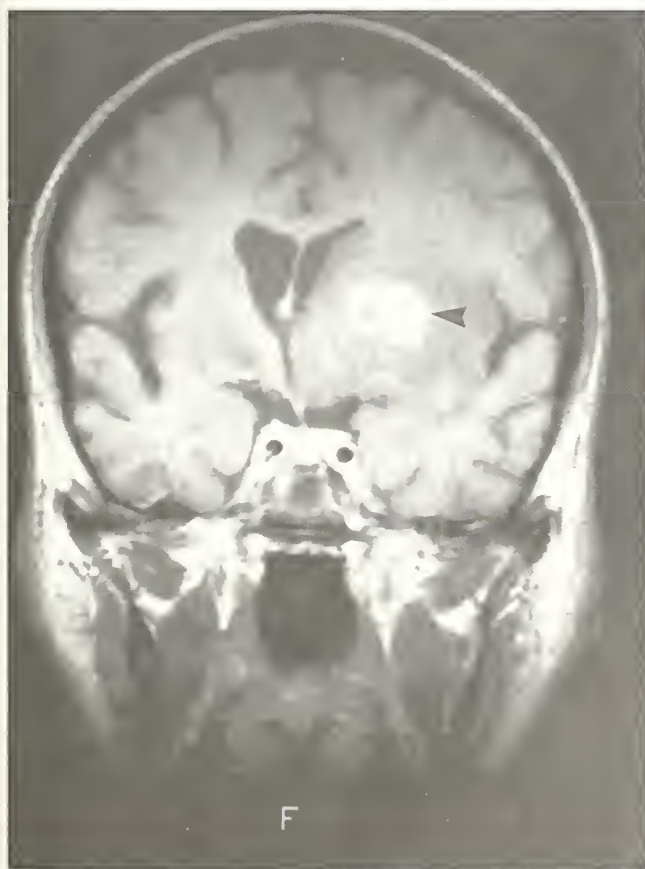


Figure 1: Forty-one-year-old man with toxoplasmosis. Gadolinium-enhanced coronal T₁-weighted image demonstrating left basal ganglia lesion (arrow). Edema and mass effect are present.

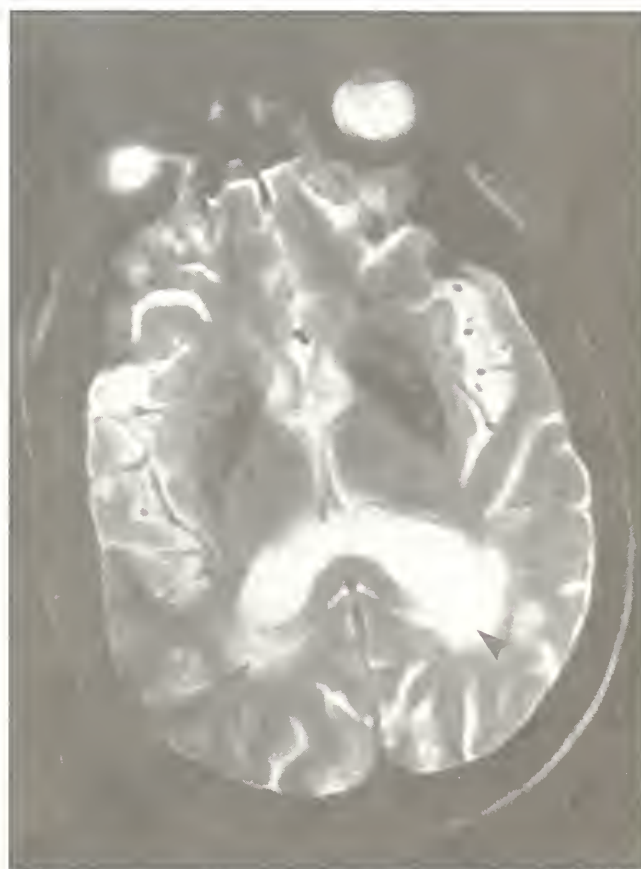


Figure 2: Forty-five-year-old man with CNS CMV proven by autopsy. Axial T2-weighted image revealing abnormal increased signal in the periventricular white matter (arrows).



Figure 3: Forty-two-year-old man with presumed HIV encephalitis. High-intensity signal abnormalities (arrows) on T2-weighted image indicate diffuse white matter disease in periventricular as well as subcortical regions.

Foci of demyelination are seen as areas of low density on CT, while MRI usually reveals high-intensity signal abnormalities on T2-weighted images, most frequently in the periventricular white matter and centrum semiovale.¹⁷ In one patient whose films we reviewed, a presumptive diagnosis of PML was made without biopsy. However, since this patient was still living one year later, the diagnosis of PML is unlikely. A more likely diagnosis is HIV encephalitis,

which is consistent with the patient's neuroimaging studies (Figure 3).

Tuberculosis (TB) and histoplasmosis – A few reports can be found documenting CNS tuberculosis and CNS histoplasmosis, but none of the reported cases were seen in AIDS patients. We believe two patients in our review were afflicted with these entities. One had a presumptive diagnosis of CNS tuberculosis; the other had a presumptive diagno-

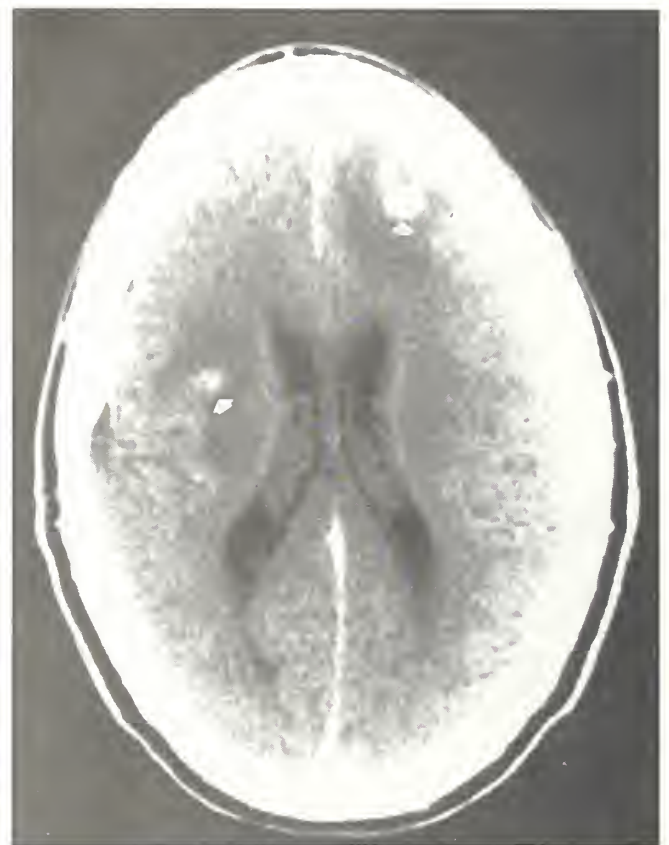


Figure 4: Thirty-one-year-old man with presumed CNS tuberculosis. Head CT with intravenous contrast demonstrating multiple nodular and ring enhancing lesions (arrows).

sis of CNS histoplasmosis. The first patient had headaches, new-onset seizures and left-sided weakness. CSF titers for *Toxoplasma gondii* and *Cryptococcus neoformans* were negative. The patient's head CT revealed multiple nodular and ring enhancing lesions (Figure 4). A right parietal brain biopsy was nondiagnostic. The patient was later diagnosed with disseminated TB after a right axillary lymph node biopsy was positive for typical *Mycobacterium*

tuberculosis. His CNS lesions were probably secondary to disseminated TB.

The second patient had double vision and numbness on both sides of the face. Physical examination revealed a broad based gait and left-sided dystaxia on cerebellar tests. Blood and CSF serologies were negative for *Toxoplasma gondii* and *Cryptococcus neoformans*, but *Histoplasma capsulatum* antigen was found in CSF. Head MRI revealed a ring enhancing pontine mass on gado-

linium contrasted images (Figure 5). The patient was started on fluconazole and his neurologic symptoms dramatically improved. This clinical course was sufficient for a presumptive diagnosis of CNS histoplasmosis.

CNS neoplasia

Primary intracranial CNS lymphoma occurs more frequently in AIDS patients when compared to normal hosts. One series reported an incidence of 6.4% in AIDS patients presenting with

CNS disease.¹⁸ The CT appearance of CNS lymphoma consists of contrast enhancing periventricular lesions that may be either nodular or relatively confluent.⁶ MRI of primary CNS lymphoma in AIDS patients reveals multiple lesions, frequently located in the temporal lobes and basal ganglia, which are usually smaller than 2 cm in diameter (Figure 6).¹⁹ These lesions are slightly hypointense on T1-weighted images, slightly hyperintense on proton density and T2-weighted images relative

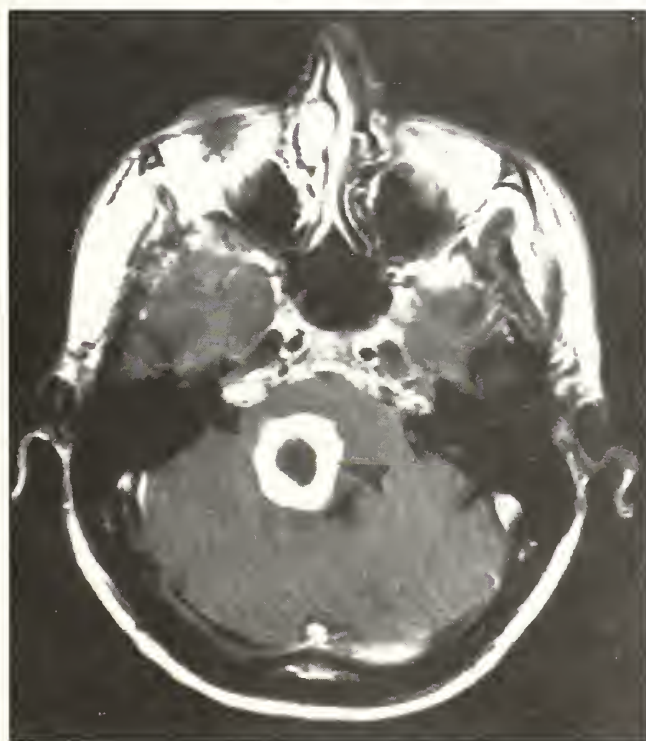


Figure 5: Thirty-two-year-old man with presumed CNS histoplasmosis. Gadolinium-enhanced axial T1-weighted image revealing a ring enhancing pontine mass (arrow).

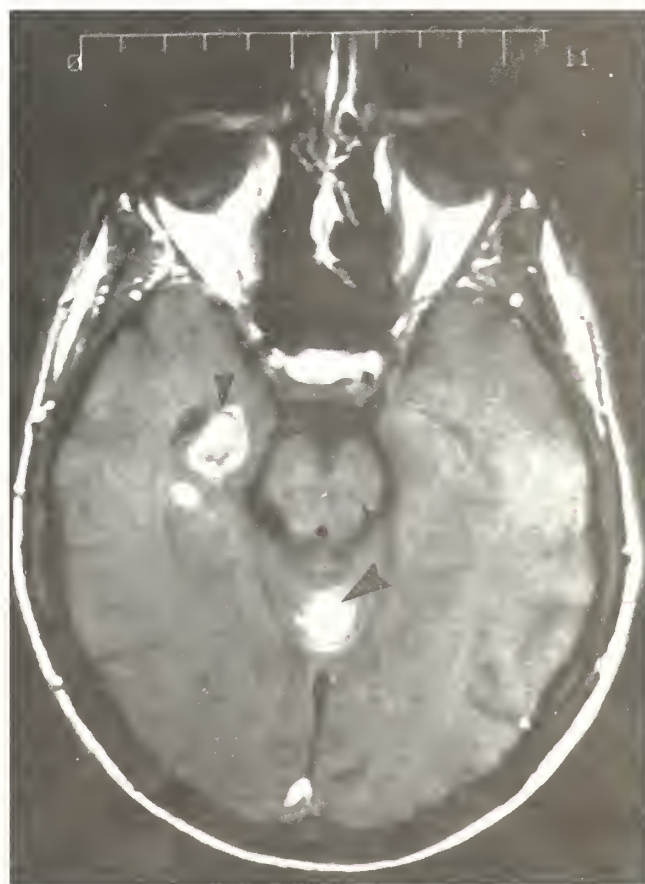


Figure 6: Thirty-five-year-old man with primary CNS lymphoma proven by biopsy. Gadolinium-enhanced axial T1-weighted image demonstrating lesions in the right hippocampus (small arrow) and cerebellar vermis (large arrow).

to gray matter, and induce mild edema and mild to moderate mass effect.¹⁹

The diagnosis of primary CNS lymphoma can be confirmed only with biopsy. Treatment consists of whole brain radiation therapy. CT and MRI appearance of primary CNS lymphoma often resembles that of toxoplasmosis, and both entities should be included in the differential diagnosis of multiple enhancing lesions in an AIDS patient. The conservative approach includes a therapeutic trial of pyrimethamine and sulfadiazine. If clinical or radiographic improvement does not occur, a biopsy is indicated.

Conclusion

Although neuroimaging studies cannot pinpoint the etiology of CNS lesions in AIDS patients, the radiographic appearance can help construct a differential diagnosis. Based on our review, radiographic abnormalities in the CNS of AIDS patients include focal lesions demonstrating contrast enhancement, diffuse white matter disease and cerebral atrophy. The differential diagnosis for focal, contrast-enhancing lesions must include toxoplasmosis and primary CNS lymphoma.

Diffuse white matter disease is seen in PML and other viral infections, such as CMV and HIV. Cerebral atrophy is a nonspecific finding, most commonly associated with infection of the CNS by HIV. Since only toxoplasmosis and primary CNS lymphoma have established modes of therapy, biopsy should be used only to differentiate the two in a patient with multiple lesions who did not

respond to empiric treatment with pyrimethamine and sulfadiazine. Clinical studies are needed to further outline the indications for biopsy in AIDS patients with CNS disease. ▮

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Warts: Benign or malignant?

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The common wart, verruca vulgaris, affects both children and adults. It is well known for its chronicity and often defies a variety of treatment modalities. Although usually considered a benign reactive process or infection, its reputation stems from its persistence and ability to be an annoyance and frustration to both the patient and physician. New evidence to date, however, suggests that not all warts are benign, and some are actually associated with a malignant capability.

We had the opportunity to investigate a patient with what

Abstract

The number of identifiable types of human papillomavirus (HPV), based on deoxyribonucleic acid (DNA) sequence, has steadily increased in recent years. Although at one time verruca vulgaris was considered a benign reactive proliferation, current evidence submits that this is not the case; some types of HPV are malignant.

appeared to be a benign recalcitrant finger wart that turned out to be squamous cell carcinoma.

Case report

A 63-year-old-white man presented with a 2 x 1.3 cm periungual growth of the right index finger. It was irregular, hyperkeratotic, verrucous and extended from the tip of the hyponychium to just distal to the distal interphalangeal joint. There

was no evidence of oozing, ulceration or fissuring, and the nail plate, although slightly elevated, was in place; there was no regional adenopathy (Figure 1). He described treating the wart for several years, including with many over-the-counter products, with no improvement.

His past medical history for cutaneous skin cancers is significant. He had a squamous cell carcinoma of the neck in 1988 and of the right posterior auricular region in 1979, which was surgically removed without complication or recurrence. He also described having had other warts on the right thumb and left third distal interphalangeal joint, which had resolved.

Initially, a 3 mm punch biopsy was performed, showing changes of squamous cell carcinoma. This was followed by a larger saucer-shaped biopsy specimen that included tissue from the tip of the finger to the junction of the distal interphalangeal joint. Histopathologically, there were further changes of squamous cell carcinoma. In addition, vacuolated, koilocytotic and rounded basophilic parakeratotic cells were noted (Figure 2). In situ hybridization studies later confirmed the presence of type 16/18 DNA

Figure 1:
Periungual
squamous cell
carcinoma of the
right distal
phalanx of the
index finger in a
63-year-old white
man.



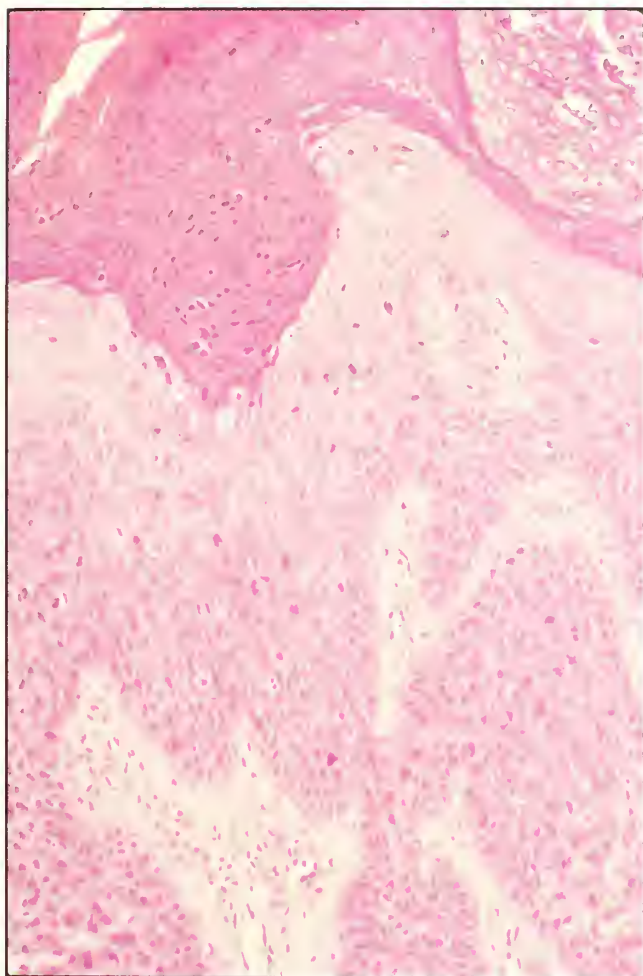


Figure 2: Photomicrograph of squamous cell carcinoma seen in Figure 1. There are prominent vacuolated and rounded basophilic parakeratotic cells, and a proliferation of atypical keratinocytes.

papillomavirus, focally, especially within the vicinity of the vacuolated cells. Strongly positive nuclear staining was present in individual and groups of atypical keratinocytes (Figures 3A, 3B and 3C).

In areas of striking atypia, however, DNA probes were negative. Testing for other types of papilloma viruses, 6, 11, 31, 35 and 51, were negative. Histopathologically, the end and tip of the finger showed more

Figures 3A, B and C: Squamous cell carcinoma with positive immunoperoxidase staining for HPV 16/18. Brown deposits, identifying the papillomavirus, are seen within some keratinocytes in the spinous and corneal layers of the epidermis.

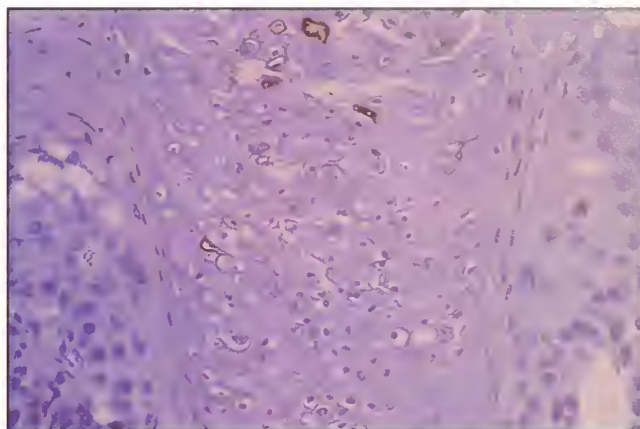


Figure 3A

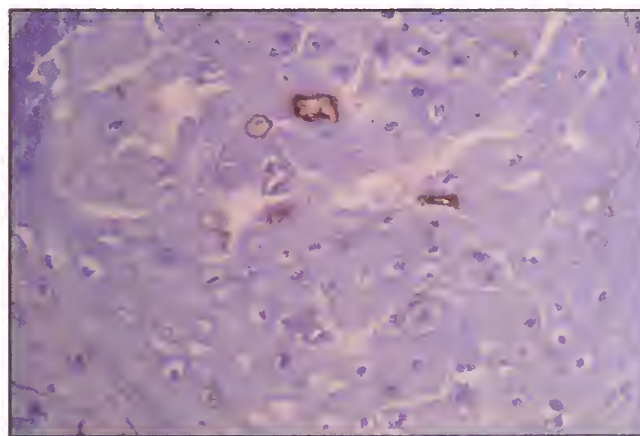


Figure 3B

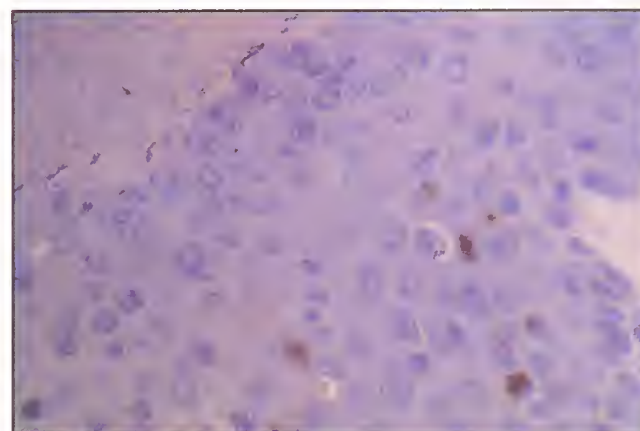


Figure 3C

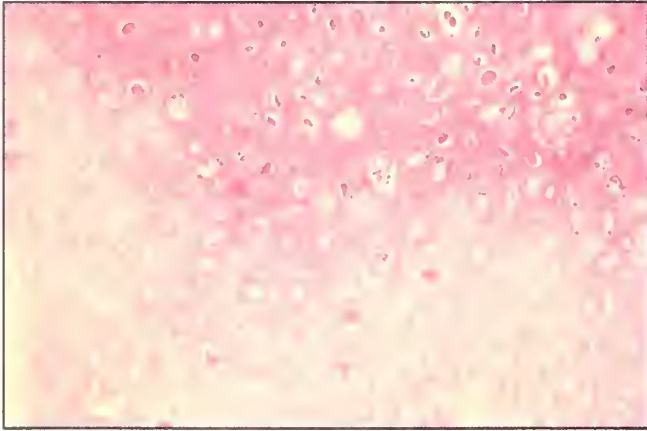


Figure 4: Early evolving squamous cell carcinoma. There are identifiable histologic HPV changes including hyperkeratosis, parakeratosis and prominent hypergranulocytic vacuolated cells, as well as some keratinocytic atypia.

Figure 5A: Fully evolved squamous cell carcinoma. Marked keratinocytic atypia, including bizarre giant cells, numerous mitoses, hyperchromatism, and an increased number of keratinocytes per unit area are easily seen in this photomicrograph.

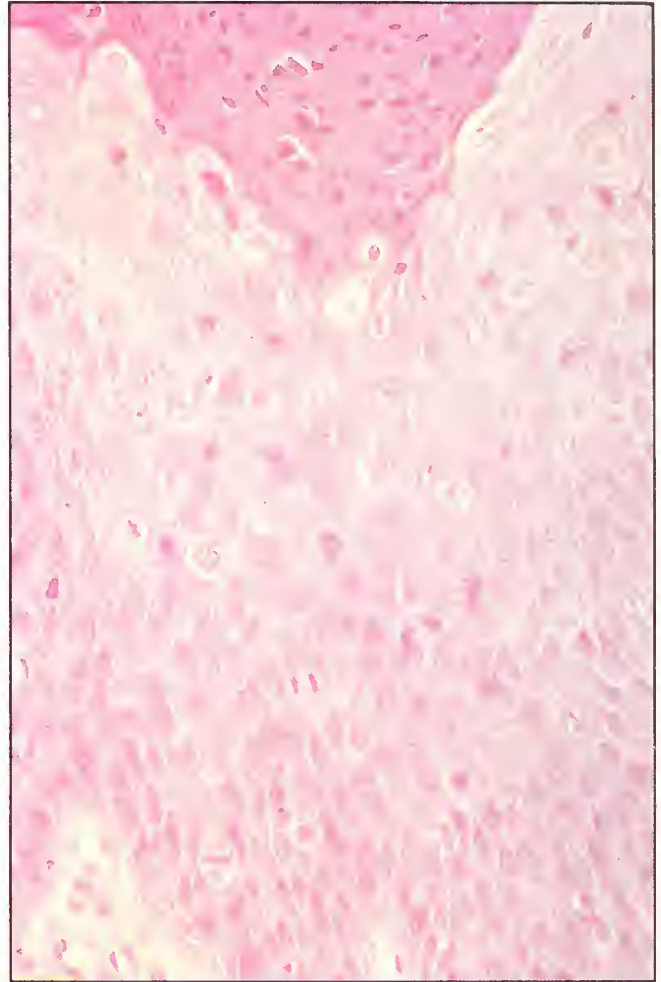


Figure 5A

typical viral changes with hyperkeratotic, parakeratotic and hypergranulocytic vacuolated cells. In addition, there were elongated interpapillary projections, dilated papillary blood vessels, as well as some keratinocytic atypia (*Figure 4*). Nevertheless, as one progressed along the length of the specimen, the common viral appearance changed to striking keratinocytic atypia and pleomorphism, including numerous atypical mitotic figures, necrotic cells, and bizarre keratinocytic giant cells, which extended into the dermis (*Figures 5A and 5B*).

The patient was referred to the hand surgery team, who performed disarticulation of the distal phalangeal joint. Surgery and postoperative course progressed without difficulty.

In situ hybridization studies

The skin biopsy was fixed in 10% (W/V) phosphate-buffered formalin and routinely processed. In situ hybridization analysis for human papillomavirus was performed according to manufacturer recommendations (Enzo Diagnostics, Inc.; PathoGene R tissue in situ assay for human

papillomavirus types 6/11, 16/18 and 31/35/51). This is a biotinylated DNA probe and localization employed a streptavidin-biotinylated horseradish peroxidase complex. The chromagen was 3,3'-diaminobenzidine, and slides were counterstained with hematoxylin.

Discussion

The human papillomavirus (HPV) is a DNA virus with various DNA types, to date about 60 identified.¹ It is the known etiological agent in common warts of the face,

trunk, extremities and genitalia. Specifically, types 5, 16, 18, 30, 31 and 35 are associated with atypia and squamous cell carcinoma. For example, laryngeal carcinoma is associated with HPV-30-specific DNA; squamous cell carcinoma is associated with epidermodysplasia verruciformis, most commonly HPV-5-specific DNA and HPV-8-specific DNA.

Squamous cell carcinoma of the genitalia (including bowenoid papulosis), squamous cell carcinoma of the eyelid, and an increased number of cases of squamous cell carcinoma of the finger have been reported recently, mostly associated with HPV-16-specific DNA.^{4*} Currently, HPV-16-specific DNA is now being identified repeatedly in the keratoacanthoma type of squamous cell carcinoma on sun damaged skin,⁹ and sexual transmission has been suspected and reported.¹⁰

In summary, it is clear that some human papillomavirus types may act in a purely benign, although recalcitrant, mode, while others may evolve into an aggressive squamous cell carcinoma. The age of the patient, child versus adult, or immunosuppression may be instrumental in the pathogenesis of this viral condition. However, physicians must know that not all warts are invariably benign, particularly in adults. ▢

Dr. Echt did this work while on rotation in dermatology with Dr. Hurwitz as a senior medical student

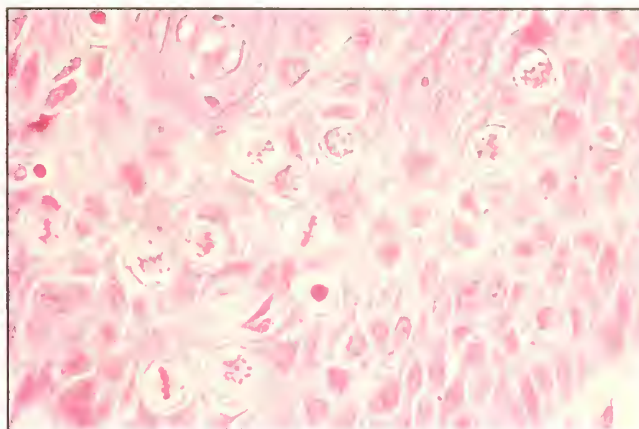


Figure 5B: (Higher power of Figure 5A). Fully evolved squamous cell carcinoma. Marked keratinocytic atypia, including bizarre giant cells, numerous mitoses, hyperchromatism, and an increased number of keratinocytes per unit area are easily seen in this photomicrograph.

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Death occurring within one week of cardiac transplantation:

Findings in eight patients

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The advent of modern medicine has produced a myriad of technically feasible medical and surgical procedures, including heart transplantation. Cyclosporine A has markedly decreased the risk of rejecting transplanted organs.¹⁻³ However, both the perioperative and postoperative periods are still fraught with medical and/or surgical complications.⁴⁻⁶ Some are inherent risks of the surgical procedures, while others are complications of the immunosuppressive therapies.⁷⁻⁹ Although good long-term survival figures were achieved, eight (9.4%) of our 85 transplanted patients died within one week of transplantation.

Materials & methods

A retrospective review of all patients having undergone heart transplantation at Methodist Hospital of Indiana between October 1982 and July 1988 was conducted for biographical data. The patients' medical charts, surgical pathology reports and necropsy reports were examined for clinical,

pathologic and anatomic data.

Results

Of the 85 patients with orthotopic heart transplantation, 67 (79%) were men, and 18 (21%) were women. Survival data at six months, one year, two years and three years were 94%, 80%, 74% and 61%, respectively (Table 1). Eight of these patients died within one week of transplantation, representing 9.4% of all the transplanted patients and nearly 28% of all deaths (Table 2).

Case 1

The heart of a 41-year-old black woman was transplanted because

Abstract

Between October 1982 and July 1988, 85 patients underwent orthotopic heart transplantation at Methodist Hospital of Indiana. Excluding perioperative deaths, survival rates at six months, one year, two years and three years were 94%, 80%, 74% and 61%, respectively. However, eight patients (9.4%) died within one week of the transplantation. Causes of death included acute failure of the right side of the heart in four patients; compression of the proximal portions of the coronary arteries in one patient; hyperacute rejection in one patient; acute pneumonia and the adult respiratory distress syndrome in one patient; and sudden death of unknown etiology in one patient.

The varied causes of death in this group of patients made it inaccurate to assume a particular cause of death for an individual patient, based on the length of the postoperative period alone. We reviewed these eight deaths in detail to better understand and, therefore, reduce the risk of early postoperative death in future patients.

of idiopathic cardiomyopathy. She suffered immediate failure of the right side of the donor heart. Her preoperative pulmonary vascular resistance (PVR) was 4.2 Woods Units (WU). Severe medial hypertrophy of the intrapulmonary arteries was noted at necropsy.

Case 2

The heart of this 24-year-old white man was transplanted because of disabling rheumatic heart disease. He died four days after transplantation from failure of the right side of the heart. His preoperative PVR was 5.0 WU. Necropsy showed moderate medial thicken-

ing of the walls of the pulmonary arterioles.

Case 3

This 56-year-old white woman died suddenly one week after transplantation while she was on the way to the bathroom.

Necropsy showed no anatomic cause of death. Her preoperative PVR was 2.1 WU.

Case 4

This 48-year-old white man had biventricular donor heart failure immediately postoperatively. He was maintained on biventricular assist devices for four days. At necropsy, dissection involving both the proximal and distal ends of the aortic anastomotic site was noted. This originated at the site of cannulation. Multiple observers noted the presence of hemorrhage between the outer media and the adventitia proximal to the suture line. This extended to the right and left main coronary arteries, externally compressing them. Distal to the suture line, the dissection occurred within the media. The patient had no history of hypertension or connective tissue diseases. No evidence of cystic medial disease was seen at necropsy.

Case 5

This 40-year-old white man died four days after transplantation. An open chest examination in the operating room showed failure of the right side of the heart. His preoperative PVR was 1.8 WU. His pulmonary vasculature was normal, histologically. However, the thickness of the donor's right ventricular free wall was 1.1 cm.

Case 6

Rheumatic heart disease was the reason for transplanting the heart of this 47-year-old white man. He

Table 1			
Orthotopic heart transplantation survival data			
	Total	Alive (#)	Alive(%)
Number transplanted	85		
Number with at least 6-mo. followup*	64	60	94
Number with at least 1-yr. followup*	60	48	80
Number with at least 2-yr. followup*	43	32	74
Number with at least 3-yr. followup*	23	14	61

* = excluding perioperative deaths

Table 2						
Time from transplant until death						
	Total	1 week	1 wk-4 wk	4 wk-6 mo.	6 mo.-1 yr.	> 1 yr.
Deaths (as of 10/15/88)	29	8	1	5	7	8

died within hours because of hyperacute rejection. Upon admission to the hospital his serum was screened for antibodies. He was hospitalized for several weeks because of cholecystitis and sepsis, in addition to intractable congestive heart failure. During this time he received several blood transfusions. He also developed homologous antibodies that reacted with his new heart. The classic findings of a mottled, boggy, swollen heart were noted at necropsy.

Case 7

This 45-year-old white man received two orthotopic heart transplants. The first was done because of endstage idiopathic cardiomyopathy. He rejected the first heart and received another heart four days later. However,

he died that same day because of pneumonia, unrecognized until necropsy.

Case 8

This 58-year-old white man died within 48 hours of transplantation because of acute failure of the right side of the heart. His preoperative PVR was 4 WU. Post-mortem examination of the pulmonary vessels demonstrated marked medial hypertrophy with intimal thickening.

Discussion

As seen in Table 1, after nearly six years of experience and transplanting 85 patients, the survival statistics at Methodist Hospital are good. They are similar to those reported by other large centers.^{1,2,8} However, of the 29 deaths, eight (28%) have occurred within one

week of transplantation (*Table 2*). This represents an immediate mortality of 9.4%. Future transplant recipients would benefit from further studies reporting ways to eliminate or reduce the risks leading to these early deaths.

Data corresponding to the eight patients who died within one week of cardiac transplantation are summarized in *Table 3*. Major findings can be grouped in the following categories: aortic dissection, acute failure of the right side of the heart, hyperacute rejection, infections and sudden death of unknown etiology.

Aortic dissection has rarely been reported as a complication of surgeries that use a cardiopulmonary bypass machine and, hence, aortic cannulation (verbal communication from L.H.S.). In our patient, dissection involved both proximal and distal ends of the aortic anastomotic site. Proximal to the suture line, it extended to

the coronary arteries, externally compressing them and causing fatal myocardial ischemia. The exact mechanism of the dissection is not known, but a mechanical factor is most likely.

Failure of the right side of the heart is not infrequently a manifestation of pulmonary hypertension.¹⁰⁻¹² The failure of the right side of the heart can be acute, leading to death, or death can occur suddenly without evidence of such failure.^{12,13} Overall, the risk of sudden death in patients with pulmonary hypertension is increased.^{12,13} In some studies, most patients do not survive beyond four years, while in others, up to 20% survive beyond five years from time of diagnosis.¹⁰⁻¹² Histologically, pulmonary hypertension is comprised of varying degrees of intimal proliferation and medial thickening of the intrapulmonary arterioles.¹⁴ An elevated PVR is noted.

Of the four patients with acute failure of the right side of the heart, three with elevated preoperative PVR also had significant medial hypertrophy of the intrapulmonary arterioles and, presumably, pulmonary hypertension. Lowering the limits of acceptable preoperative PVR from the current 6 to 8 Woods Units may be necessary.³ This might have resulted in denial of transplantation in the three cases above.

The other patient with acute failure of the right side of the heart had a normal preoperative PVR, 1.8 WU, and did not have histologic evidence of pulmonary hypertension in his lungs at necropsy. However, the free wall of the donor heart right ventricle was 1 cm, suggesting the possibility of pulmonary hypertension in the donor. Whether transplanting a heart from a patient with pulmonary hypertension into a re-

Table 3
Summary of eight patients dying within
one week of heart transplantation

Patient #	Days postop	Cause of death	Preop PVR (WU)	Condition of pulmonary arterioles
1	0	right heart failure	4.2	medial hypertrophy
2	4	right heart failure	5.0	medial hypertrophy
3	7	sudden cardiac death	2.1	normal
4	4	aortic dissection	1.7	normal
5	4	right heart failure (donor right ventricular hypertrophy)	1.8	normal
6	0	hyperacute rejection	2.6	normal
7	4	pneumonia, ARDS*	< 1.0	normal
8	2	right heart failure	4.0	medial hypertrophy

* = Adult respiratory distress syndrome

recipient with a normal PVR carries the same risk of acute failure of the right side of the heart and/or sudden death as transplanting a heart from a patient with a normal PVR into a recipient with an increased PVR requires further study. Only cardiac catheterization of the potential donor could determine whether or not pulmonary pressures are increased.

Hyperacute rejection is a rarely described phenomenon in cardiac transplantation, thanks to preoperative screening. Repeating screens for antibodies within 10 to 14 days of each batch of transfused blood products would be cumbersome and expensive but may prevent transplanting a patient who quickly develops hyperacute rejection and dies.

Infections are not infrequent in postoperative patients due to a variety of factors. Post-transplant patients also are susceptible to a variety of infections, including those due to bacteria, viruses, fungi and protozoa.⁷ The lungs are the organs most commonly infected.⁷ Various immunosuppressive regimens further compound the situation as does development of other processes such as the adult respiratory distress syndrome in one patient in this study.

Sudden death is often cardiac in origin.^{15,16} Patients with sudden cardiac death account for approximately 20% of all fatalities in the United States.¹⁵ The cause is atherosclerotic coronary artery disease in 75% of them.^{15,16} A multitude of coronary artery, myocardial, valvular and conduction

system abnormalities account for the remainder.¹⁵ In a few patients, no cardiac nor other cause for sudden death can be found. This was the case in one patient in this study.

We have presented eight patients who died within one week of orthotopic cardiac transplantation. Some died of unforeseeable and probably unpreventable causes. However, changes in current screening procedures and guidelines for acceptance into the transplant pool may prevent some of the other problems in the future. Most importantly, these patients demonstrate the great diversity of terminal events that need to be considered when evaluating patients who have died within one week of cardiac transplantation. □

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Posterior interosseous syndrome

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The posterior interosseous nerve is the terminal motor branch of the radial nerve supplying innervation to the extensor muscles of the forearm. The anatomic pathway of the posterior interosseous nerve in the proximal forearm leaves the nerve susceptible to entrapment or compres-

sion at several sites. Dysfunction of this nerve results in loss or weakness of thumb and finger extension. Posterior interosseous syndrome, therefore, represents a compression neuropathy of the posterior interosseous nerve, leading to loss of thumb and finger extension.^{7-10,14}

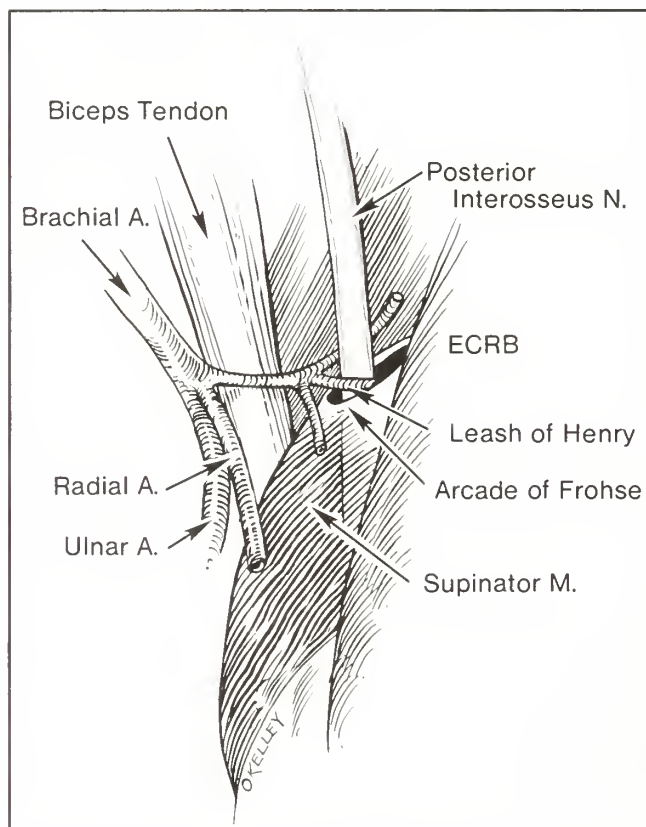
The radial nerve arises from the posterior cord of the brachial plexus. As it courses distally, it spirals posteriorly around the mid shaft of the humerus lying deep to the triceps muscles. At the distal

third of the humerus, the nerve passes anteriorly through the lateral intermuscular septum and comes to lie in a plane between the brachialis and brachioradialis muscles. As it crosses the elbow anteriorly, the radial nerve is closely applied to the capsule of the radiocapitellar joint. Down to this level, the radial nerve is a mixed motor and sensory nerve. Beyond this point, the radial nerve divides into the dorsoradial sensory branch and its terminal motor component, the posterior interosseous nerve.

The dorsal radial sensory nerve continues distally through the forearm deep to the brachioradialis muscle. The posterior interosseous nerve passes beneath the free edge of the extensor carpi radialis brevis muscle near its origin and enters the supinator muscle through an aponeurotic hiatus referred to as the Arcade of Frohse. Just before penetrating the supinator muscle, the nerve is crossed by a leash of vessels arising from the radial recurrent artery (Figure 1).

The posterior interosseous nerve emerges from its passage through the supinator muscle on the dorsum of the forearm. It then branches rapidly in a pattern sometimes compared to the cauda equina of the spinal cord to innervate all the extensor muscles arising from the lateral epicondyle and distally from the extensor surfaces of the radius and ulna. The exceptions to this are the extensor carpi radialis brevis, which

Figure 1: Passage of the posterior interosseous nerve through the radial tunnel.



usually is innervated by a separate motor branch given off from the radial nerve proximal to its passage through the supinator, and the anconeus muscle, which is innervated by a terminal motor branch to the triceps mechanism.^{5,6}

The supinator muscle is supplied by a branch from the posterior interosseous nerve proximal to the passage of the nerve through its two muscle bellies. The brachioradialis and extensor carpi radialis longus muscles arise from the supracondylar ridge of the humerus and not the lateral epicondyle. Their innervation is derived directly from the radial nerve proximal to the antecubital fossa.

Posterior interosseous nerve syndrome presents as a weakness or loss of finger and thumb extension. The syndrome may involve all digits or lesser groups of digits. As the nerve involved is a nearly pure motor nerve, pain is usually not a presenting symptom. In posterior interosseous nerve syndrome, the extensor carpi radialis longus and brevis muscles will not be affected and, therefore, wrist extension remains intact. Palpation along the course of the radial nerve through the radial tunnel may produce discomfort, although this tends to be a more significant finding in radial tunnel syndrome. Radial tunnel syndrome is characterized by proximal forearm discomfort with activities but no actual loss of motor function. Clinical examination will demonstrate difficulty extending the thumb at both the metacarpal phalangeal and interphalangeal joints and difficulty extending the fingers at the metacarpophalangeal level (Figure 2). The patient will sometimes attempt to extend the fingers using a tenodesis effect of wrist flexion. Weakness of the ulnar wrist

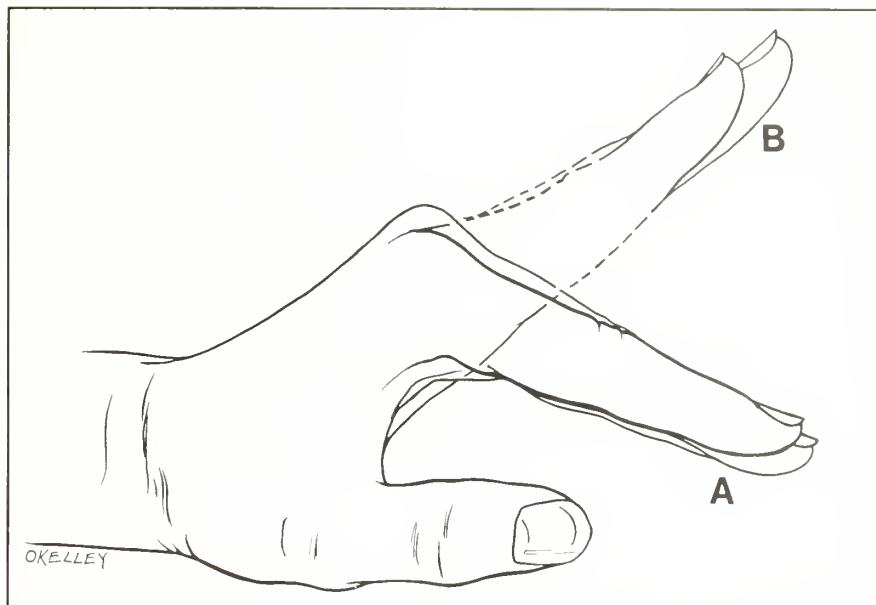


Figure 2A: Posturing of hand with attempts at active extension in a patient with posterior interosseous nerve syndrome. **Figure 2B:** The position of normal wrist and finger extension.

extensor may also be present. Localization of the site of nerve damage is frequently aided by nerve conduction studies and electromyography. Radiographs of the elbow are useful in identifying adjacent joint or osseous pathology. Scanning techniques, such as ultrasound, computer assisted tomography or magnetic resonance imaging, are helpful in identifying soft tissue mass lesions.

Depending upon the suspected etiology of the posterior interosseous nerve syndrome, treatment may be either conservative therapy or surgery. Potential sites of nerve compression in posterior interosseous nerve syndrome include synovitis involving the radiocapitellar joint,¹² the aponeurotic edge of origin of the extensor carpi radialis brevis, the vascular leash of the radial recurrent artery² and the proximal and distal aponeurotic hiatus of the

supinator muscle.^{4,15,17} The posterior interosseous nerve may be compressed in this area by mass lesions, such as ganglions,¹ lipomas,¹¹ enlarged bicipital bursas^{3,16} or other soft tissue tumors.¹³ The nerve at this level also may be traumatized by fractures involving the neck of the radius, dislocations of the radial head or iatrogenically by surgical procedures in this area.

Conservative management for posterior interosseous nerve syndrome is appropriate if the syndrome is acute in onset and/or secondary to a closed traumatic injury. Activities involving the affected upper extremity should be limited to avoid repetitive forearm rotation. If necessary, splint immobilization may be required. The patient should be instructed in a program of passive range of motion to the affected joints. Dynamic extension splinting of the fingers may help, although this is

usually not necessary as limited digital extension may be produced by the tenodesis affect of wrist flexion. If clinical recovery is not evident within three months after the onset of the nerve palsy, an electromyograph should be obtained to determine whether reinnervation is occurring. If this is not the case, then surgical exploration of the posterior interosseous nerve is indicated.

Surgery should be performed in cases failing conservative management, in situations where the palsy is chronic in nature or has resulted from an open injury. Regardless of the surgical approach used to expose the nerve, the nerve must be explored from the level of the radiocapitellar joint distally to the site beyond which the posterior interosseous nerve emerges from the supinator. Further distal exposure is indicated in posterior interosseous nerve syndromes that are incomplete. In the course of nerve exploration, the vascular leash of the radial recurrent artery, the aponeurotic origin of the extensor carpi radialis brevis and the fascial hiatuses of the supinator muscle must be released. The area must be thoroughly explored for anomalous anatomic structures and soft tissue tumors.

The postoperative management of patients with posterior interosseous nerve syndrome is identical to that used for conservative observation.

Electrodiagnostic evaluation of the nerve three months after surgery is indicated if clinical signs of recovery are not present.

If normal muscle function provided by innervation of the posterior interosseous nerve does not return, tendon transfers are available to restore digital extension.

Posterior interosseous nerve syndrome represents an injury to the terminal motor branch of the radial nerve. Many potential etiologies for this syndrome exist and must be considered in the differential diagnosis. Posterior interosseous nerve syndrome is characterized by weakness or loss of digital extension. Conservative or surgical management may be necessary, depending upon the suspected pathology. ▴

This is another in a series of monthly articles on hand conditions from The Indiana Hand Center in Indianapolis.

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Optometric prescribing becomes law: How did it happen?

Mike Abrams
ISMA Director of Government
Relations/Marketing

Optometric prescribing is now law in Indiana, despite the ISMA's diligent efforts to defeat this legislation in the 1991 Indiana General Assembly. How did this bill pass? Here is an account of events leading up to the passage of the bill.

Senate Bill 281, which allows optometrists to prescribe legend drugs, started as such an insignificant bill that it gained nearly unanimous approval by Indiana's senators. Sen. Marvin Riegsecker (R-Elkhart), a pharmacist, decided to introduce legislation that would allow the pharmacy counter of a drug store to close for two hours within a 24-hour period if certain conditions are met (e.g., medicine cabinet is locked, sign is posted). It sounded harmless enough.

Since the bill concerned health care providers, Senate President Pro Tempore Bob Garton (R-Columbus) assigned the bill to the Senate Health and Human Services Committee, chaired by Sen. Virginia Blankenbaker (R-Indianapolis). The assigning of a bill to committee is considered a bill's first reading. At this stage, there is no discussion or debate on the bill.

Because the pharmacy lunch-hour language did not stir any significant controversy, the committee voted "aye," sending the bill to the floor for second reading. Discussion or debate on the original language of the bill is not held during second reading either, as this is the amending stage of

the process. Amendments can be technical or substantive.

SB 281 sailed through the Senate. No amendments were offered, and the bill was unanimously approved, sending it on its way to the House.

Shortly afterward, a rumor began circulating that language concerning optometrists was going to be introduced into the bill. The facts soon became known. The Indiana Optometric Association was launching an all-out attack on SB 281 to gain language allowing for prescribing privileges. The group apparently did not want committee scrutiny of the bill; instead it planned a second reading amendment effort.

This strategy was a good one from organized optometry's perspective. Because ancillary providers, such as optometrists, have such strong grassroots lobbying efforts, they are often able to effectively influence their legislators through the volume of mail and phone messages.

Because the bill now had passed one chamber, getting language added on second reading would leave ISMA virtually only one chance to kill it – in conference committee.

ISMA representatives immediately began meeting with people who would be players in the issue. They included Rep. Charlie Brown, who as chairman of the House Health Committee, to which SB 281 had been assigned on its House first reading, would be able to exercise some control over the language if it were offered in committee; Rep. Doug Kinser, the House sponsor of the bill who would have some control

over the language; and Sen. Riegsecker, the original author of the bill.

Sen. Riegsecker did the ISMA a favor – he told lobbyists for the optometrists that if they did not get the language heard in committee, he would strip it out in conference committee. He knew that waiting until a bill got to its second chamber and through committee, then sneaking such important language in on second reading, was "dirty pool." The task for organized optometry as well as for the ISMA was to turn up the grassroots heat.

The optometrists retained two more lobby firms, bringing to five the number of lobbyists working for them.

The ISMA requested that the next meeting of the House Public Health Committee be delayed for one week. Rep. Brown granted the request, thus giving the ISMA time to prepare its testimony and convince at least six committee members that the ISMA's position was right.

Committee member Bill Crawford (D-Indianapolis) planned to introduce language allowing optometrists to prescribe any legend drug, except controlled substances, as treatment for any condition of the eye.

Two obstacles would eventually prove impossible for the ISMA to overcome:

1. Because they had worked surreptitiously early in the session, the optometrists had obtained commitments from several members of the House Public Health Committee and the general House membership.

2. Legislators' commitments

were made based on a specious argument. Optometrists said since 1935 they had been legally prescribing legend drugs exactly as this bill would allow. They further argued that, without provocation, the pharmacy board promulgated a rule prohibiting pharmacists from accepting prescriptions from optometrists, thus giving rise to the need for this legislation. Their posture was "a vote for optometry is a vote against bureaucracy," and who in his right mind favors bureaucracy?

The ISMA legislative staff acted quickly to oppose the optometric prescribing language. It distributed informational packets to committee members and attempted to convince them that the language was dangerous to public health. ISMA members were asked to call members of the House Public Health Committee and ask them to oppose optometric prescribing. Three lobbyists and Ed Langston, M.D., a former practicing pharmacist, met with House Minority Leader Paul Mannweiler, Senate President Pro Tempore Bob Garton and Senate Minority Leader Dennis Neary. House Speaker Mike Phillips also was visited.

Despite the excellent testimony of Dr. Langston and several ophthalmologists, only three House Public Health Committee members sided with the ISMA at the hearing: Doug Kinser, Dale Grubb and John Ruckleshouse.

Next the ISMA began planning a second reading strategy to try and insert language placing some limits on drugs optometrists could prescribe. We asked that the bill be called down on second reading on the deadline day to give the ISMA time to draft amendments and secure amendment authors. Since the request was not granted, the ISMA worked the House floor, believing the real chance for a victory was in the Senate. ISMA did not know how right it was: the bill passed House third reading 97 to

their own information-gathering campaign. They visited with the deans of Indiana University's Schools of Medicine and Optometry and met with representatives of the optometric association, medical association and academy of ophthalmology.

The Indiana Academy of Ophthalmology was having its annual meeting the same day as the conference committee meeting, so many ophthalmologists took time from their meeting to attend the committee hearing. The draft that Sen. Riegsecker finally disclosed

was a victory for optometry, with little consideration given to the ISMA's suggestions. It required optometrists who wish to prescribe to become certified, required a formulary to be

***Despite the excellent testimony
of Dr. Langston and several ophthalmologists,
only three House Public Health Committee
members sided with the ISMA
at the hearing.***

2, with Reps. Ruckleshouse and Grubb holding firm.

The bill then returned to the Senate, where Sen. Riegsecker, as the bill's author, had to concur or dissent with the House amendment. Two lobbyists approached Sen. Riegsecker immediately after the House vote and asked him to dissent from the House amendment, explaining that the House language was disastrous and the most liberal prescribing language in the nation. He agreed to dissent, which sent the bill to conference committee.

Conference committee members were Sen. Riegsecker, Sen. Kathy Smith, Rep. John Keeler and Rep. Paul Mannweiler. Sens. Riegsecker and Smith conducted

adopted and allowed optometrists to prescribe only off the formulary, which had a loophole a Mack truck could plow through. The draft also established a committee, slanted toward optometrists, to develop the formulary and the certification requirements. From the ISMA's viewpoint, however, the worst provision allowed optometrists to prescribe anything they wanted until the formulary was adopted.

During a recess, nearly 30 ophthalmologists and lobbyists lobbied senators, pointing out weaknesses and suggesting alternatives.

A bad bill grew worse when the committee reconvened. A section limiting the amount that

optometrists could dispense from their offices was deleted. Rep. Keeler indicated that before he could sign the report, he wanted some questions answered regarding the optometric scope of practice. (All four conferees must sign a report before it can be considered by the House or the Senate.) By the next day, Speaker Phillips had removed Rep. Keeler as a conferee and replaced him with Rep. Charlie Brown, who signed the report.

The ISMA then realized its

only hope was to kill the bill on the Senate floor – a slim possibility. We lined up senators who agreed to speak against the legislation. We urged physicians and spouses to contact their legislators to voice opposition to the bill.

The Senate voted 38-10 to support the bill, which Gov. Evan Bayh eventually signed into law. Even if Bayh had vetoed the bill, it likely would have been overridden because 97 House members and 38 Senators supported the bill.

The legislative process is frustrating, as the passage of this bill indicates. The rules seem to allow almost anything to happen at the last minute, with the result often being irresponsible public policy.

However, in the legislative process, "you live by the sword and you die by the sword." Occasionally House and Senate rules and the enforcement of those rules work in the ISMA's favor. In the case of SB 281, they worked against us. □

■ drug names

Look-alike and sound-alike drug names

	DESIPRAMINE	DISOPYRAMIDE
Category:	Antidepressant	Antiarrhythmic
Brand name:	Norpramin, Merrell Dow Pertofrane, Rorer	Norpace, Searle
Generic name:	Desipramine HCl	Disopyramide
Adverse reactions:	Itching, dry mouth, alopecia, tachycardia	Flatulence, bloating, rash, dry mouth (32%)
Dosage forms:	Tablets	Capsules
	ENALAPRIL	ANAFRANIL
Category:	Antihypertensive	Antidepressant
Brand name:	Vasotec, MSD	Anafranil, CIBA
Generic name:	Enalapril maleate	Clomipramine HCl
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■ the wounded healer

Treatment of chemically dependent physicians

Kete Cockrell, M.D.
Plainfield, Ind.

Treatment models for chemical dependency vary widely in substance and duration. The severity of the disease is a cardinal consideration when choosing the appropriate treatment. Other factors are anticipated withdrawal syndrome, general medical condition, dual diagnosis, response to treatment and family support system. Chemically dependent physicians also have other unique factors including tremendous egos that accentuate denial and the ability to intimidate therapists. Generally, therapists treat physicians as "someone special," falsely assuming the physicians have a greater understanding of chemical dependency than the therapists do. The physician's position in the medical community; embarrassment of being treated by acquaintances or friends; easy access to drugs; and licensure, hospital staff and drug enforcement (DEA) agency problems further complicate the therapeutic process.

Physicians have more formal education than 90% to 95% of the general population. Life-and-death decisions are part of their daily routine. Their medical school conditioning mandates perfectionism. These and other characteristics form a fortified denial network referred to as the M-Deity Syndrome. Treatment among "peers" is necessary or the physician will intellectually dominate his fellow patients and nullify the integral group interaction process that is mandatory in any successful treatment program. If this denial cannot be broken, treatment is impossible. The most experienced and dedicated therapists frequently fail.

The M-Deity Syndrome is fortified by the position physicians assume in their communities. By serving on charitable, hospital, political and other public committees, they occupy positions of influence. Real and imagined authority over many people, including therapists and their families, is associated with these positions. This authority, real or otherwise, often influences a therapist's attitude toward physicians. Inhibition of necessary confrontation and disclosure results and treatment is ineffective.

Further potential therapeutic inhibitions may exist because most addiction therapists have less formal training than physicians. A predictable interaction results, with the therapist having a tendency to feel inadequate or assume the physician is more knowledgeable about the disease and treatment of chemical dependency than he really is. The diseased physician becomes an immediate, self-appointed clinical expert on the subject and feels he can treat himself and his fellow patients better than the therapist or anyone else. This defocusing on treatment enables the physician to continue denial and avoid participating in necessary emotionally painful treatment activities. Physicians may interact in this manner in a conventional treatment program and complete the program with little or no improvement.

Other inhibitions arise when a physician is treated in a treatment center located in his community or when treatment is provided by an acquaintance. Chemical dependency is still viewed by many as a lack of will power, a criminal act or an amoral act. Chemically dependent physicians and their families who hold such views

suffer tremendous shame and guilt. Dealing with these feelings in private or with a stranger is difficult enough. Trying to deal with them in the presence of staff who may be acquaintances or friends is much more difficult. In this setting, not only is therapy sabotaged, but the physician's disease progression is enabled.

Another potential block to a physician's recovery is easy access to drugs in the day-to-day practice of medicine. A mainstay in recovery is avoiding exposure to mind or mood altering substances. If physicians intend to re-enter their professions, they must acquire coping mechanisms to deal with this exposure. Guidelines for prescribing, possessing and administering drugs must be developed. Formulation and implementation of safeguards for handling controlled substances in the workplace require networking with fellow employees. Many therapists are not aware of these issues due to lack of experience with physician patients. Instituting the necessary coping mechanisms, guidelines and networks requires specialized professionals. Failure to be thorough in these areas almost guarantees relapse.

Legal liabilities constitute additional complications to therapy. By the time chemically dependent physicians are diagnosed and enter treatment, many have significant legal, DEA or licensure problems. Knowing the proper procedures to follow in assisting the physician with these problems could save his license, his DEA privileges or his freedom. Most therapists who work in specialized physician treatment programs realize outside consultation is necessary. They work closely with representatives of the state medical association physician

■ the wounded healer

assistance program in these areas, offering invaluable services to physicians and their families. Therapists in conventional treatment programs have little or no experience in these areas and are not aware of local resources to help the impaired physician.

Specialized physician treatment programs staffed by health professionals with extensive experience in treating physicians is mandatory if the above factors are to be addressed successfully. Some treatment facilities advertise specialized programs that, in reality, do not have specialized personnel or professional program components. Other treatment facilities admit physicians and treat them with the general patient population. Without on-site inspection by a qualified reviewer, such programs cannot be identified. Admitting a chemically dependent physician to these facilities invites disaster.

In the past, chemical dependency treatment providers have been criticized for a general lack of professionalism. Those operating in-patient facilities have been accused of falsely supporting the efficacy of in-patient treatment. The same was said for those affiliated with intensive out-patient or residential treatment programs. Realistically, some economically motivated individuals have operated facilities with policies and procedures designed to fill programs and maintain profitable utilization with little regard for diagnosis or treatment. This bias of a definite minority of treatment providers has overshadowed the professionalism and dedication of most addictions therapy providers.

The American Society of Addiction Medicine and the National Association of Treatment Providers

have developed guidelines standardizing admission criteria, continued stay criteria, staging disease severity, credentialing standards and program standards. These standards, based on current medical opinions concerning the diagnosis and treatment of the disease of chemical dependency, establish credibility in the field. Adopting these criteria is generally a prerequisite to reimbursement by third-party payers. Consequently, economically motivated treatment centers are forced to cease operations due to lack of funding and/or accreditation.

Consistent with recommended guidelines, chemical dependency treatment centers should be directly associated with an acute care hospital, including acute psychiatric facilities, or have immediate available access to such facilities. These are considered minimal support facilities to adequately address withdrawal syndrome, associated medical conditions and potential co-existing psychiatric problems. Medical staff should include a full spectrum of consultants representing the major medical specialties. Initial in-patient evaluation is advisable for complete diagnostic work-up and treatment of withdrawal symptoms.

Most physicians are in an advanced stage of chemical dependency by the time they are diagnosed; therefore, most will require advanced treatment commensurate with the severity of their disease. Talbott-type treatment programs were designed specifically to fulfill treatment requirements for physicians and other health professionals. These are internationally known programs with recovery rates of 85% at two years and 78% at five years. A minimum of four

months is required to complete a Talbott-type program. In-patient detoxification, intensive in-patient, intensive out-patient and residential treatment modalities are used.

Psychiatric evaluation is completed on all patients, and concurrent treatment, including in-patient psychiatric facilities, is available for dually diagnosed individuals. Not all physicians will require Talbott-type programs; however, if a treatment center cannot provide a Talbott-type treatment program, the staff will be hesitant to recommend treatment that is not available at the center. If a center is incapable of rendering comprehensive physician therapy, including Talbott-type, the center will be ineffective in treating physicians.

The policies of the Indiana State Medical Association Commission on Physician Assistance prohibit treatment of physicians by its medical consultant or any member of the commission. Pre-assessments are made by the program medical consultant, program coordinator or a commission member at no charge to the physician or the physician's family. If information obtained in the pre-assessment indicates possible chemical dependency, the physician is referred to a treatment center with comprehensive physician therapy potentials, including a Talbott-type program. Anonymity is assured by recommending out-of-state facilities.

The only thing more disastrous than an untreated chemically dependent physician is an inappropriately treated chemically dependent physician. ▴

The author is medical consultant to the ISMA Physician Assistance Program.

■ auxiliary report

Kay Enderle
ISMA-Auxiliary president

We are pleased and honored to start a new auxiliary year. We again will focus on retaining ISMA-Auxiliary members and recruiting new members with exciting and creative programming.

The ISMA-Auxiliary will sponsor many projects to benefit the AMA-ERF. The annual Day at the Capitol will be held in February and a guest speaker will be added. A breast health workshop will be offered to all auxiliaries and

guests at the ISMA annual convention Nov. 8 through 10.

County auxiliaries will continue to promote community projects, such as scholarships, food banks, flower sales, homeless clinics, teen cards, cookbooks and the immunization record program, to improve health care locally.

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Shown at the ISMA Auxiliary annual meeting at the Columbia Club in Indianapolis are, seated, left to right, Joann Wehlage, Sue Greenlee, Kay Enderle, Trudy Urgena and Marilyn Krueger and, standing, from left, Lura Stone, Rosanna Iler (executive director), Patrick Walker, Sue Schneider, Jinny Casey, Pamela Pangan, Joyce Noroozi, Valerie Gates, C. Rodney Ashley and Ann Wrenn.

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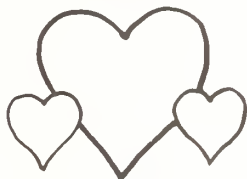
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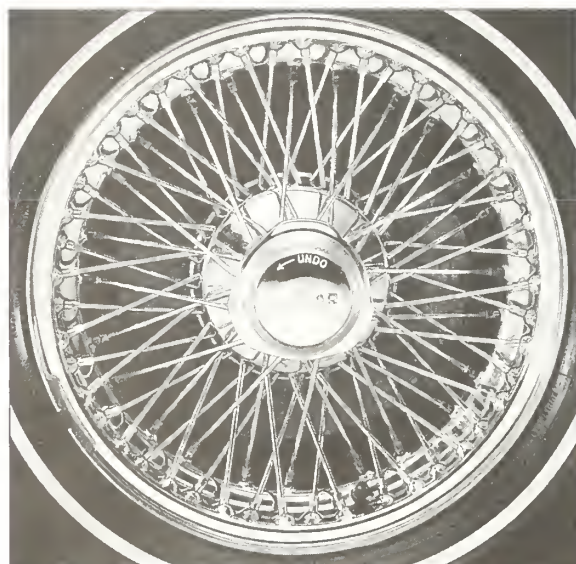
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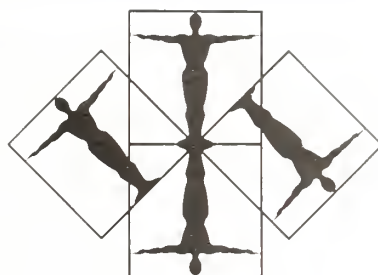
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■ obituaries

Wilbur P. Beeson, M.D.

Dr. Beeson, 68, a Greenfield family practitioner, died April 22 at St. Vincent Hospital in Indianapolis.

He was a 1951 graduate of the Indiana University School of Medicine. He also was an ordained minister who served congregations in Greenfield, Carmel and Nettle Creek.

Dr. Beeson served with the Medical Missionary in Kenya, Africa, from 1954 to 1958 and practiced medicine in Greenfield from 1958 to 1980. He had been a staff physician and former chief of staff at St. John Medical Center in Anderson.

Don A. Gerrish, M.D.

Dr. Gerrish, 88, a Terre Haute family practitioner, died May 5 at his home.

He was a graduate of the University of Louisville School of Medicine.

Dr. Gerrish was a life member of the Union Hospital staff and a member of the Wabash Valley Horseman's Association and the Miniature Horse Association.

Jay M. King, M.D.

Dr. King, 68, a Logansport surgeon, died April 14 at Memorial Hospital in Logansport.

He was a 1949 graduate of the Indiana University School of Medicine and a U.S. Army Air Corps veteran of World War II.

Dr. King was a member of Phi Beta Kappa.

Cecil G. McEachern, M.D.

Dr. McEachern, 78, a retired Fort Wayne surgeon, died April 23 at St. Joseph Medical Center.

He was a graduate of the University of Western Ontario Faculty of Medicine in Canada and served as a squadron leader in the Royal Canadian Air Force during World War II.

Dr. McEachern was a surgeon in Fort Wayne 37 years, retiring in 1984. He was the first president of the Parkview Memorial Hospital medical staff.

Emma J. Peden, M.D.

Dr. Peden, 56, an Indianapolis internist, died April 23.

She was a 1972 graduate of the Indiana University School of Medicine.

Dr. Peden had been in private practice since 1975 and was on the staff of Community Hospitals in Indianapolis. She had been the medical consultant for American States Insurance Co. since 1973.

Francis G. Sheehan, M.D.

Dr. Sheehan, 80, a retired Indianapolis emergency medicine physician, died April 29 at University Heights Convalescent Center in Indianapolis.

He was a 1938 graduate of the Indiana University School of Medicine and served as a physi-

cian in the 82nd Airborne Division in World War II. After being wounded, he was featured in Ernie Pyle's book, *Brave Men*.

Dr. Sheehan had been in private practice in Irvington and St. Francis Hospital in Beech Grove. He worked in the Indiana Disability Determination Division 10 years.

Jack E. Shields, M.D.

Dr. Shields, 78, a Brownstown general practitioner and surgeon, died April 25 at Heritage House Nursing Home in Greensburg.

He was a 1936 graduate of the Indiana University School of Medicine and a U.S. Air Force veteran of World War II.

Dr. Shields had served as an ISMA delegate to the American Medical Association and was a past president of the Indiana University Medical School Alumni Association. He was a life member of the American Academy of Family Physicians and a recipient of the Sagamore of the Wabash award.

Byron C. Wheeler Jr., M.D.

Dr. Wheeler, 61, Indianapolis, died May 25.

He was a 1955 graduate of the Indiana University School of Medicine and a Navy veteran.

Dr. Wheeler was an internist in Greenwood for six years. He previously had been in private practice 26 years in Terre Haute. □

B-6 deficiency distresses mother, child

The inconsolable, intense cry from a well-fed, rested and dry baby could be due to the mother's low intake of vitamin B-6 during pregnancy or while nursing, according to a Purdue University study. The study, which appeared in the June issue of the *American Journal of Clinical Nutrition*, found that babies of B-6-deficient mothers cried more often and for longer periods of time.

Any well-balanced diet will provide adequate amounts of vitamin B-6, according to the study. Foods containing vitamin B-6 include bananas, liver, herring, salmon, walnuts, peanuts, wheat germ, brown rice and yeast.

Fatigue brochure available

The Arthritis Foundation has developed a new brochure, *Coping With Fatigue*, that provides practical tips for decreasing fatigue and for managing symptoms of fatigue.

To receive a free copy of the brochure, call the Indiana Chapter Arthritis Information Line, 1-800-783-2342, Indiana residents only.

NIH issues statement

A National Institutes of Health consensus development statement on the Clinical Use of Botulinum Toxin is now available.

The report was issued by a panel of experts who considered scientific evidence at a Consensus Development Conference at the NIH. A free copy of the statement may be obtained by writing William H. Hall, Director of Communications, Office of Medical Applications of Research, National Institutes of Health, Building 1, Room 259, Bethesda, MD 20892.

NIH to focus on disorders

The National Institutes of Health will sponsor a consensus development conference on "The Treatment of Panic Disorders" Sept. 25 to 27 in the Masur Auditorium at the NIH in Bethesda, Md.

Topics will include epidemiology, treatment planning, short- and long-term effects of treatments and future research.

For conference information, contact the Conference Registrar, Prospect Associates, 1801 Rockville Pike, Suite 500, Rockville, MD 20852, (301) 468-MEET.

AHCPR reports available

The Agency for Health Care Policy and Research (AHCPR) of the U.S. Department of Health and Human Services has published two reports, *Salivary Electrostimulation in Sjogren's Syndrome* and *Protein A Columns for Immune Thrombocytopenia*.

The reports are geared toward physicians, hospital administrators and private health insurance firms. To obtain a free copy of either report, contact the Information and Publications Division, Agency for Health Care Policy and Research, Room 18-12, Parklawn Building, 5600 Fishers Lane, Rockville, MD 20857, (301) 443-4100.

HVO seeks volunteers

Health Volunteers Overseas (HVO), a private organization committed to improving health care through medical education in developing countries, seeks volunteer medical personnel for programs in anesthesia, dentistry, general surgery, oral and maxillofacial surgery and orthopaedics. Volunteer assignments generally last one month. For details, call (202) 296-0928. ┘



Dr. Hinton

been a member of the Indiana Medical Licensing Board since 1986.

Dr. Steven R. Smith, director of occupational health and medicine for Community Hospitals Indianapolis, was the keynote speaker at the plenary session of the 12th annual Occupational Health and Safety Conference sponsored by the Indiana State Chamber of Commerce; he spoke on "Occupational Health and Safety in the 1990s - Changes, Challenges and Choices."

Dr. Hans R. Wilbrandt of Indianapolis presented two papers at the meeting of the American Society for Cataract and Refractive Surgery Association; the papers were titled "Phacoemulsification with Altered Flow Parameters" and "Posterior Capsular Distension Syndrome in Two Cases with Ciliary Sulcus Placed IOLs."

Dr. Stephen W. Perkins of Indianapolis has been certified by the American Board of Facial Plastic and Reconstructive Surgery.

Dr. David A. Sorg, a Fort Wayne endocrinologist, was elected president of the Indiana Affiliate of the American Diabetes Association. **Dr. James K. Malone** of Indianapolis was elected president-elect.

Dr. Scott Shapiro, assistant professor of neurosurgery at the Indiana University School of Medicine, presented a paper on suprascapular nerve entrapment and the surgical management of

Dr. John T. Hinton of West College Corner, Ind., was elected to the board of directors of the Federation of State Medical Boards; he has

Physician Recognition Award recipients

The following ISMA physicians are recent recipients of the AMA's Physician Recognition Award. This award is official documentation of Continuing Medical Education hours earned and is acceptable proof in most states requiring CME in re-registration that the mandatory hours of CME have been accomplished.

Akin, Daniel P., New Albany
Erleben, Walter O., Bluffton
Gordon, Mark, Munster
Kubley, Rod S., Plymouth

Molstad, Clay L., Lafayette
Pratt, G. Byington, Zionsville
Villafane, Juan, New Salisbury

suprascapular nerve entrapment at the American Association of Neurological Surgeons Annual Cushing Meeting in New Orleans; he also presented four other posters on various topics.

Dr. William R. Nunery of Indianapolis edited the *Ophthalmic Clinics of North America Edition* released in April; he also authored two chapters.

Dr. Scott A. Hackett of Indianapolis has joined the Indianapolis otolaryngology practice of Drs. Robert W. Stephens, Jack V. Gossett and Vicki K. Shelton.

Dr. Eugene C. Klatte, chairman of the radiology department at the Indiana University School of Medicine, has received the gold medal, the highest honor bestowed by the American Roentgen Ray Society.

Dr. Herman J. Echsner of Columbus was honored at a reception for his years of service as director of emergency field services at Bartholomew County Hospital; although he is stepping down from the position, he will continue as medical director of Columbus Emergency physicians.

Dr. John Eliades, a Muncie surgeon, received the Silver Beaver Award, the highest recognition a Boy Scout council can give

a volunteer; he has been active in scouting 30 years.

Dr. Steven E. Stoller, a Richmond ophthalmologist, attended the American Cataract Society meeting in Boston on no-stitch self-sealing cataract surgery.

Dr. Wymond B. Wilson has retired after 37 years as a family practice physician in Mentone and the surrounding community.

Dr. Robert J. Warren, a Richmond pediatrician, has been accepted as a member in the newly formed Section of Infectious Diseases of the American Academy of Pediatrics.

Dr. Charles C. Hedde, a Vincennes internist, has been named to the Vincennes Community School Board.

Dr. Paul E. Schmidt, Indianapolis, was elected to the board of directors of Goodwill Industries of Central Indiana.

Dr. James P. Mauck of Elkhart was elected a fellow of the American College of Obstetricians and Gynecologists.

Dr. Steven K. Elliott, an Evansville family physician, was honored as 1991 Volunteer of the Year by the United Way of Southwestern Indiana; he was recognized for his work at a new neighborhood health clinic for the poor.

Dr. Willard S. Krabill has retired as campus physician at Goshen College.

Dr. Amos Arney, a retired Michigan City general practitioner, was awarded the J.C. Penney Golden Rule Award in recognition of his five years of service to the Open Door Health Clinic.

Dr. J. David Carnes, a Huntington family physician, was elected to the board of directors at First Federal Savings Bank.

Dr. William R. Penland, an Evansville ophthalmologist, was elected secretary-treasurer of the Deaconess Hospital medical staff.

Dr. Richard W. Cross, a Warsaw obstetrician/gynecologist, attended the annual meetings for the National Consortium of Breast Centers and the Society for the Study of Breast Disease; his office

was again chosen as the liaison chair for the consortium. □

New ISMA members

James E. Beckett, M.D.,
Merrillville, radiology.

Timothy P. Beeson, M.D.,
Indianapolis, cardiovascular diseases.

Charles M. Chuman, M.D.,
Chesterton, neurological surgery.

Yolanda A. Dickson, M.D.,
Munster, family practice.

Edward H. Gillham, M.D.,
Valparaiso, otolaryngology.

Viroz Juisai, M.D.,
Merrillville, cardiovascular surgery.

Timothy E. King, M.D.,
Elkhart, anesthesiology.

James M. Lindsay, M.D.,
Bloomington, pediatrics.

Stephanie Mosley, M.D.,

Wabash, general surgery.

Dhan Raj, M.D., Marion, anesthesiology.

Madhu Rao, M.D., West Lafayette, psychiatry.

Mahendra M. Shah, M.D.,
Hammond, oncology.

Matthew E. Shambaugh,
M.D., Fort Wayne, plastic surgery.

Daniel J. Snow, M.D.,
Scottsburg, family practice.

Phillip M. Walker, M.D.,
Bloomington, emergency medicine.

William H. Ward, M.D.,
Ellettsville, family practice.

Residents

Thomas J. Chowattukunnel,
M.D., Indianapolis, ophthalmology.

Pamela E. Fadul, M.D., Indianapolis, anesthesiology. ▴

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PURDUE UNIVERSITY STUDENT HOSPITAL

is seeking a BC/BE physician to provide primary care in an active university health setting serving a student population of 36,500. Health care and prevention services are offered through outpatient and women's clinics, an 11-bed inpatient unit, urgent care facilities, mental health service, physical therapy department and a progressive health promotion/patient education program. This full-time, 12-month appointment offers excellent fringe benefits, including a generous vacation/holiday package, CME allowance, malpractice coverage, an outstanding retirement program, medical insurance and light call schedule. Applicants should have a strong interest and/or experience in working with college students. Please call or send CV to James S. Westman, Ph.D., Acting Director, Purdue University Hospital, West Lafayette, IN 47907, (317) 494-1720. An Equal Opportunity Action Employer.

PEOPLE'S HEALTH CENTER, which is a community health center, is seeking candidates for the position of executive director. Qualified applicants will possess an MBA/MPH or MHA and a minimum of two years of experience. Resumes to Executive Director, Search Committee, People's Health Center, 2340 E. 10th St., Indianapolis, IN 46201.

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Action: Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors, its effect on blood pressure, if any, would be to lower it, however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

Indications: Yocon[®] is indicated as a sympatholytic and mydriatic. It may have activity as an aphrodisiac.

Contraindications: Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

Warning: Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

Adverse Reactions: Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral a-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.^{1,2} Also dizziness, headache, skin flushing reported when used orally.^{1,3}

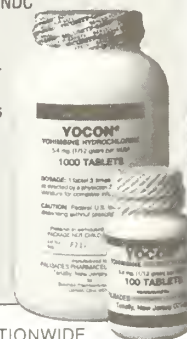
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

How Supplied: Oral tablets of Yocon[®] 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

References:

1. A. Morales et al., New England Journal of Medicine: 1221, November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical Letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

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The Journal of the Indiana State Medical Association

August 1991

Vol. 84, No. 8



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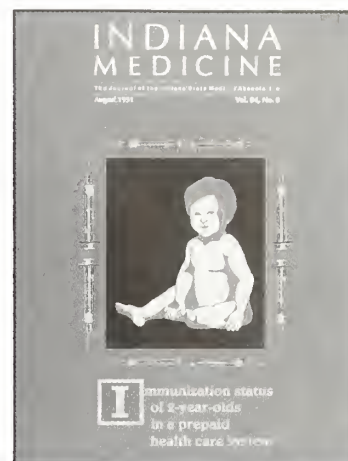
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New program enables physicians to provide care to HIV patients

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The Indiana HIV Early Intervention Program helps HIV-positive people
access primary health care and other medical, laboratory, dental
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YOCON[®]

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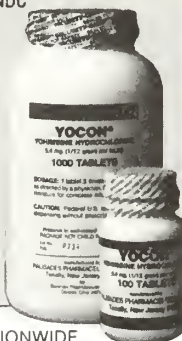
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AUG 29 1991

ISMA representatives visit U.S. senators, congressmen

Several representatives of the Indiana State Medical Association traveled to Washington, D.C., July 24, to discuss the Resource Based Relative Value Scale with Indiana's congressional delegates. Attending from the ISMA were Michael O. Mellinger, M.D., ISMA president; C. Dyke Egnatz, M.D., president-elect; Rick King, ISMA executive director; and Mike Abrams and Lou Belch, ISMA lobbyists. They visited Indiana's 10 congressmen and two senators.

ISMA files amicus brief in Sue Ann Lawrance case

Although Sue Ann Lawrance has died, the Indiana Supreme Court still could rule in the case of the 42-year-old brain-damaged Indianapolis woman. At the time of this writing, the court had not announced if it would hear the case. Lawrance, who was in a persistent vegetative state for four years, died July 18. Three days earlier, the Indiana State Medical Association filed an amicus curiae (friend of the court) brief with the Indiana Supreme Court, supporting Lawrance's parents' decision to withdraw artificial hydration and nutrition. Since May, Lawrance had been at the center of a legal battle about whether artificial feedings to the brain-damaged woman could be stopped. The Supreme Court originally was scheduled to hear oral arguments on the case July 24.

Other groups that filed briefs supporting the family's decision to end the feedings were the Society for the Right to Die, Indiana Civil Liberties Union and the Universalist Fellowship for Social Justice. The groups filing briefs said both federal and state law permit the withdrawal of life-prolonging medical treatment in cases involving persistent vegetative states. They also maintain that under federal and state case law and statutory law, the parents of an incompetent, such as Sue Ann Lawrance, have the legal authority to make the decision to withdraw life-prolonging medical treatment and other parties should not be allowed to interfere with that process.

A fund to help defray the Lawrance family's legal expenses has been established. Contributions payable to The Bill Lawrance Family Fund may be sent to Robert H. Bruner, Custodian for the Lawrance Account, 8145 Rose Meade Lane, Indianapolis, IN 46240.

ISMA schedules seminars on addictions throughout state

"Impairing Diseases in Our Colleagues, Families and Patients" is sponsored by the Indiana State Medical Association Commission on Physician Assistance. Dates and locations are: Sept. 11, Deaconess Hospital, Evansville; Oct. 23, Memorial Hospital, South Bend; Oct. 30, Floyd Memorial Hospital, New Albany; Nov. 6, Methodist North Hospital, Gary; and Nov. 20, ISMA headquarters, Indianapolis.

There is no charge for the seminars, which are open to physicians, related health care professionals and family members. Category I CME credit will be given by the American Academy of Family Physicians. For details, call Candace Backer, (317) 261-2060 or 1-800-969-7545. □

■ from the museum

During the 19th century, physicians had few effective remedies to offer to their patients. By the Civil War, most doctors had abandoned the traditional remedies of bloodletting and purging. Except for a variety of tonics, a doctor was left with few treatments for disease.

The public was not satisfied with this therapeutic void and turned to nostrum vendors and medical device manufacturers to relieve their many ailments. These entrepreneurs took advantage of the public's unrelenting quest for cures and provided them with a plethora of worthless and even dangerous over-the-counter remedies and medical gadgets touted to cure everything from the common cold to cancer. Electricity was one recurring fad in medical therapeutics.

America's fascination with electricity and medicine dates to the late 1700s. Electrical tropical fish were used in Charleston, S.C., to treat palsied patients. Benjamin Franklin, who brought electricity down from the sky in the 1750s, helped a doctor use electricity in treating a woman with convulsions.

The first quackery device introduced in America was Elisha Perkins' metallic tractors. Perkins believed that when these two small metallic rods were rubbed over the surface of the skin they would draw off "noxious electrical fluids." Many people, from the common man to physicians and lawyers, extolled the virtues of these devices. Perkins' tractors unlocked the imagination of the American public – perhaps electricity held the key to health.

After the Civil War, interest in medical electricity soared as scientists began exploring the mysteries of electricity. Many believed

that the human body was electrical or magnetic in nature. By the late 19th century, many doctors even asserted that the loss of balance of electricity within the body was responsible for disease. The brain furnished electricity to the rest of the body; the nerves carried the electro-nervous fluids or electricity. Books such as *The Electric Physician* (1875) and *A Manual For Magnetizing* (1845) became popular.

The interest in electricity spurred many manufacturers to develop medical electrical kits or magneto-electric machines that provided a mild electric current designed to cure almost every disease known to mankind. These devices consisted of a small wet or galvanic cell that when activated (by turning a crank) would give the patient a mild electric current. The Indiana Medical History Museum has a wide variety of electrical gadgetry used to cure disease. A recent addition to the collection is the Davis and

Kidder Magneto-Electric Machine, patented in 1854. The device was used to cure "nervous diseases."

Professor Benjamin Silliman, a noted geologist, wrote about the device: "For neatness, compactness and facility and energy of operation, it is far superior to any instrument of the kind which I have seen. For medical application, it possesses very decided advantages."

Other electrical devices flooded the market, including electric socks, electric hairbrushes and combs, electric necklaces and electric extracts and fluids. The fascination with medical electricity continued well into the 20th century. The 1938 Food, Drug and Cosmetic Act limited the claims that manufacturers of medical devices could make, which in turn, limited the production of medical quackery devices. ■

The Indiana Medical History Museum is located at 3045 W. Vermont St. in Indianapolis.



Davis and Kidder's magneto-electric machine patented in 1854.

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■ what's new

Lea & Febiger has released two new publications titled *Atlas of Synovial Fluid Analysis and Crystal Identification* and *Tinnitus: Diagnosis/Treatment*. The *Atlas of Synovial Fluid Analysis and Crystal Identification* is a 264-page guide that contains chapters on fresh synovial fluid preparations, crystal analysis, artifacts and the full spectrum of techniques. *Tinnitus: Diagnosis/Treatment* is a 586-page book providing a rationale for the diagnosis and treatment of subjective idiopathic tinnitus, based on a multi-disciplinary approach that unites the fields of otolaryngology, otology, audiology, psychology and neurology.

To order either book on a 30-day approval, call 1-800-638-0672.

Wampole Laboratories has developed a revised Reading Guide/Procedural Chart for use with its ONE-STEP hCG pregnancy test. The chart serves as a reference guide that depicts positive and negative reactions. It is available in all four kit sizes.

Eastman Kodak's Clinical Products Division has introduced a centrifuge that uses a new design to separate blood samples. The Kodak Ektachem microcentrifuge renders all blood samples ready for testing in 30 seconds. The unit spins up to eight samples at a time and comes with a one-year warranty.

Clark Boardman Co. has published *Health Care Fraud and Abuse: A Guide to Federal Sanctions* to help health care professionals understand and apply federal law providing for health care-related sanctions. The guide is divided into sections on hospitals, nursing homes, physicians, peer review organizations, risk-sharing organizations and insurance companies. To order, call 1-800-221-9428.

Hewlett Packard has introduced the HP PageWriter XLe basic cardiograph for private-physician and hospital use. The cardiograph produces conventional 12-lead electrocardiograms (ECG) and allows different formatting for various clinical tests and applications. A high-resolution, digital-array printer produces ECG tracings and records that are labeled with ECG data and patient information.

Precision Health Care Systems has introduced a new line of Holter Monitoring Systems. Three systems were designed to meet

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the requirements of physicians and hospitals. The systems use an ultra-light recorder that stores every beat for a 24-hour period on analog tape. A full disclosure print-out is always available, and super-imposition scanning allows all ECG waveforms to be viewed for complete verification.

Ortho Pharmaceutical Corp. and McNeil Pharmaceutical have received approval from the U.S. Food and Drug Administration to market FLOXIN[®], a broad-spectrum oral antibiotic for use against many common infections. FLOXIN already has been used by 65 million patients worldwide to treat infections in the lower respiratory tract, urinary tract, prostate, moderate to mild skin and soft tissue infections and sexually transmitted diseases.

Bristol-Myers Squibb Co. has introduced MONOPRIL[®] tablets to treat hypertension. It is the first in a new chemical class of angiotensin converting enzyme (ACE) inhibitors, the phosphinic acids.

Storz Ophthalmics has introduced Rev-Eyes[™], a new agent that reverses the effects of diagnostic mydriasis induced by phenylephrine and tropicamide. Rev-Eyes is being marketed by Storz and distributed by Lederle Laboratories. □

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St. Mary's Medical Center

St. Mary's Medical Center in Evansville will sponsor these courses:

- Sept. 12 - Joseph E. Coleman
Pediatric Seminar:
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- Sept. 26-27- Childhood Leukemia
- Treatment Issues.
- Oct. 10 - Annual Family
Medicine Seminar:
Medical Problems of
the Performing Artists.

All seminars will be held in St. Mary's Medical Center Amphitheatre in Evansville. For details, call (812) 479-4468.

Indpls. Regional Heart Center

The Indianapolis Regional Heart Center in Indianapolis will sponsor these courses:

- Aug. 14 - Lipids Roundtable,
Peter's Restaurant,
Indianapolis.
- Aug. 22 - Community Hospital
South Family Practice Evening Programs, Ischemic Heart Disease/Hypertension, Holiday Inn South, Indianapolis.
- To be announced - Hyperlipidemia
Multi-Disciplinary Conference, St. Francis Hospital Center, Indianapolis.
- Sept. 3 - Cardiology Grand Rounds, Holiday Inn, Shelbyville.
- Sept. 22 - Cardiac Team In-Service, Indiana Heart Physicians Conference Center, Indianapolis.
- Oct. 17 - Cardiology Grand Rounds, Updates in Cardiac Surgery, Catarrhous, Martinsville.

For more information, call Brandon Roger or Marsha Breen, (317) 783-2776.

Indiana University

The Indiana University School of Medicine will sponsor these courses:

- Aug. 16-17- Vascular Surgery Course, University Place Conference Center and Hotel, Indianapolis.
- Sept. 6 - Infectious Disease Symposium, site to be announced.
- Sept. 11 - Perinatal Meeting, University Place Conference Center and Hotel, Indianapolis.
- Sept. 27 - Gastroenterology Update and Gut Club Meeting, University Place Conference Center and Hotel, Indianapolis.
- Sept. 28 - Management of Hypercholesterolemia, University of Notre Dame, South Bend.
- Oct. 18-19 - Family Practice Update in Cardiology: Emphasis on Office Practice, Krannert Institute of Cardiology, Indianapolis.
- Nov. 8-9 - Wound Management For Health Care Providers, Radisson Hotel, Keystone at the Crossing, Indianapolis.
- Nov. 18-22- Second Annual Comprehensive Transthoracic & Transabdominal Fine Needle Aspiration Biopsy Cytology, University Place Conference Center and Hotel, Indianapolis.

Indianapolis.

For more information, call Sheryl King, (317) 274-8353.

Methodist Hospital

Methodist Hospital of Indiana will sponsor the following courses:

- Sept. 14 - Healthcare for the Homeless and Poor, State Board of Health.
- Sept. 14 - Total Hip Replacement 1991: Issues and Concerns, Methodist Hospital, Petticrew Auditorium, Indianapolis.
- Sept. 27-28- Child Neurology Getaway, Hueston Woods State Park Lodge, Ohio.
- Oct. 3 - Brief Cognitive Therapy: Behavioral Care of the Future, Westin Hotel, Indianapolis.
- Oct. 11 - Diabetes Update, Omni Severin Hotel, Indianapolis.
- Oct. 21-22 - AmbuQual Users Conference, Days Inn at the Airport, Indianapolis.
- Nov. 1-2 - Advanced Cardiac Life Support Course, Methodist Hospital, Wile Hall, Indianapolis.
- Nov. 6 - Practical Topics in the Care of the Elderly: Lester Bibler Day, Methodist Hospital, Petticrew Auditorium, Indianapolis.
- Nov. 15-16- Advanced Trauma Life Support Course, Methodist Hospital, Wile Hall, Indianapolis.

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Clinical use of interleukin-2 in treating cancer

David L. Patterson, M.D.
Michael C. Wiemann, M.D.
Indianapolis

Surgery, radiation and chemotherapy are three current methods used in treating cancer. Scientists now realize that cancer diminishes the responsiveness of the host immune system. Stimulating the immune systems of some cancer patients may be of therapeutic benefit. Immunotherapy with a variety of new agents soon will provide a fourth method of anticancer treatment.

Early studies using immunotherapy focused on the ability of crude biological agents, such as bacillus Calmette-Guerin (BCG) or *Corynebacterium parvum* to nonspecifically stimulate the immune system. It was hoped that a general increase in immune reactivity would lead to a corresponding increase in specific immune reactivity toward neoplastic cells. However, the local and systemic administration of these agents did not produce lasting clinical responses. This treatment is replaced by more specific forms of immunotherapy.¹

Recent advances in immunology have identified several cell-derived soluble growth factors that regulate the proliferation and differentiation of lymphoid and monocytic immune effector cells. These growth factors are collectively called cytokines and include the interleukins (IL-1 through IL-

7) tumor necrosis factor (TNF), and the interferons (INF) alpha, beta and gamma. Cytokines produced by monocytes and macrophages are called monokines, while cytokines produced by lymphocytes are called lymphokines.

The family of interleukins acts as hormones of the immune system. They regulate replication, differentiation and expression of effector cell functions. Our understanding of cytokine function, both on the molecular level and clinical level, has been enhanced by recombinant DNA technology, allowing large-scale production of purified cytokines.

One cytokine, interleukin-2 (IL-2), increases immune system reactivity against a variety of tumors and shows promise as a clinical therapeutic agent. IL-2 is a 15,000 dalton glycoprotein, produced by activated T cells after stimulation by mitogens or antigens. Interleukin-2 causes the activation and proliferation of cytotoxic cells including lymphokine activated killer (LAK) cells.

Studies at the National Cancer Institute (NCI) in the early 1980s demonstrated that incubation of human lymphocytes harvested from the peripheral blood with IL-2 led to the generation of a population of cells capable of lysing a variety of fresh tumor cells *in vitro*.² These IL-2 stimulated lymphocytes are known as LAK cells. Subsequent studies revealed that intravenously administered LAK cells were capable of lysing a vari-

ety of human tumor cell types *in vivo*. LAK cells do not lyse normal cells. They are not human leukocyte antigen (HLA)-restricted in their activity and are a phenotypically heterogeneous population of cells.³

Results of trials using murine models demonstrated that *ex vivo* IL-2-activated LAK cells plus intravenous IL-2, or high-dose IL-2 alone, induced the regression of a broad range of established hepatic, pulmonary and subcutaneous tumor metastases.^{4,5}

Clinical trials with a variety of different metastatic malignancies have been conducted at the NCI and other regional cancer centers. When IL-2 is administered either as a single agent or in combination with LAK cells, complete or partial responses are observed in several malignancies. The malignancies include melanoma, renal cell, colon, ovarian and non-small cell lung carcinomas, as well as Hodgkin's and non-Hodgkin's lymphomas (Table 1). Thus far, the most promising results have been obtained in patients with renal cell carcinoma or melanoma, two tumor types that respond poorly to conventional therapy.⁴

Interleukin-2 treatment induces a variety of side effects that involve different organ systems (Table 2). A comparison of the studies addressing the toxicities of IL-2 is difficult for several reasons: 1) there are differences in dose, frequency of treatment and method of IL-2 administration; 2)

there are differences in the definition of various side effects; 3) in some studies, patients were premedicated with various drugs to prevent certain side effects; and 4) exclusion of patients with pre-existing medical conditions is not consistent.

Regardless of the differences in procedure, the results of all studies have indicated similar patterns of toxicity. Toxicity is related to the dosage of IL-2 and the method of administration. For example, studies by West et al have demonstrated less toxicity with continuous infusion of IL-2 compared to bolus dosing.⁹ Pulmonary, cardiac, hepatic, renal, neurologic, dermatologic and hematologic side effects usually resolve rapidly after discontinuation of IL-2 administration.¹ Most side effects can be

anticipated and managed medically without having to discontinue IL-2 therapy. There is no unifying theory that explains how IL-2 causes such a variety of adverse effects. Understanding the direct and indirect effects of IL-2 in vivo has led to the postulation of mechanisms.

IL-2 acts as a pyrogen by inducing the production of pyrogenic cytokines such as TNF- α . Fever induced by IL-2 begins several hours after infusion of the drug; this is consistent with the temporal accumulation of TNF- α in the serum of patients not treated with antipyretics.¹⁵ Fever and chills associated with IL-2 are managed with acetaminophen and meperidine, respectively.

Infusion of IL-2 is associated with a well-described capillary

leak syndrome, causing hemodynamic changes that affect multiple organ systems. Damage to the capillary endothelium is mediated by cytokines such as TNF, INFs and other interleukins produced by lymphocytes in the presence of IL-2.¹⁵ When IL-2 is administered to mice that are immunosuppressed by cyclophosphamide or radiation, or to genetically athymic immunodeficient mice, there is little or no evidence of the capillary leak syndrome. This suggests that IL-2 does not cause the capillary leak syndrome by a direct action.¹⁷ The hemodynamic changes that result from the capillary leak syndrome resemble those found in septic shock.¹⁷

Cardiovascular effects include decreased systemic vascular resistance and decreased mean arterial pressure, leading to hypotension,

Table 1

Results of treatment with IL-2/LAK or IL-2 in clinical trials in patients with advanced cancer

Diagnosis	Total evaluable	IL-2/LAK			Total evaluable	IL-2		
		CR	PR	% CR+PR		CR	PR	% CR+PR
Renal	246	23	51	30	64	4	7	17
Melanoma	217	13	36	23	45	0	1124	
Colorectal	110	3	14	16	20	0	0	0
Non-Hodgkin's lymphoma	7	2	3	71	7	0	3	43
Sarcoma	12	0	1	80	-	-	-	
Lung carcinoma	11	0	2	18	1	0	0	0
Breast	3	0	1	33	2	0	0	0
Hodgkin's lymphoma	3	0	1	33	0	-	-	-
Ovarian	3	0	2	67	0	-	-	-

CR: complete regression (complete disappearance of all known disease)

PR: partial regression ($\geq 50\%$ decrease in tumor size)

Table was prepared by compiling data from 10 different clinical studies⁶⁻¹⁴

and an inadequate compensatory increase in cardiac output and heart rate.¹⁸ Tachycardia can be associated with supraventricular arrhythmias. The increased myocardial oxygen demand induced by this high-output state can lead to angina or myocardial infarction, especially in patients with underlying coronary artery disease. Hypotension caused by the capillary leak syndrome leads to decreased renal perfusion with subsequent azotemia and oliguria.¹⁹ Increased vascular permeability also is responsible for pulmonary edema with resulting dyspnea. Third-space fluid retention and weight gain are common.²⁰

The hemodynamic effects of IL-2 are predictable and managed by monitoring fluid status, blood pressure, urine output and body weight. Adequate blood pressure and end organ perfusion can be maintained with intravenous colloids and pressor agents. The hemodynamic effects of IL-2 resolve rapidly after discontinuing the drug.

Treating patients with IL-2 is associated with a higher than expected rate of infection by nonopportunistic pathogens.²¹ Pathogens most frequently isolated are skin flora, particularly *S. aureus* and *S. epidermidis*. Central venous catheters have been implicated as the likely source of infection. Pretreatment of the catheter insertion site with topical antibiotics has been of marginal benefit.²² The prophylactic use of intravenous oxacillin significantly reduces catheter-related sepsis.²³ A recent study has elucidated one mechanism to explain the increased rate of infection in patients receiving IL-2 immunotherapy. The investigators dem-

<p><i>Table 2</i></p> <p>Toxicity of therapy with *LAK/IL-2 or IL-2 alone</p>	
COMMON SIDE EFFECTS	INFREQUENT SIDE EFFECTS
<ul style="list-style-type: none"> • Fever, chills • Capillary leak syndrome • Fluid retention, weight gain • Hypotension requiring fluids • Malaise • Nausea, vomiting • Diarrhea • Eosinophilia • Pruritis, rash • Elevated creatinine • Elevated liver function tests • Reversible cholestasis • Hyponatremia 	<ul style="list-style-type: none"> • Mucositis • Arrhythmias • Angina • Myocardial infarction • Neuropsychiatric abnormalities • Arthralgias • Hypotension requiring pressors • Hypothyroidism • Anemia • Infection • Dyspnea • Thrombocytopenia
<p>* Infusion of LAK cells has been associated with only minor toxicity¹⁶ including fever and chills experienced by most patients and headache, nausea and vomiting in a small number. All other side effects of LAK/IL-2 immunotherapy have been attributed to IL-2.</p>	

<p><i>Table 3</i></p> <p>Future prospects for the use of IL-2 in immunotherapy</p>
<ul style="list-style-type: none"> • IL-2 + tumor infiltrating lymphocytes (TIL) • Polyethylene glycol (PEG-IL-2) • IL-2 + other cytokines (i.e., interferons, tumor necrosis factor (TNF), other interleukins) • Local/regional administration of IL-2 • IL-2 + cytotoxic agents (i.e., cyclophosphamide) • IL-2/LAK + monoclonal antibodies

onstrated that IL-2 produces an acute, profound and reversible defect in neutrophil chemotaxis.²¹

In recent clinical trials, treatment of human cancers with IL-2 has shown promising results. Investigators are focusing on ways to increase the therapeutic efficacy of IL-2 while decreasing the side effects and complexity of treatment (*Table 3*). One method di-

rected at increasing its efficacy is the combination of IL-2 with tumor-infiltrating lymphocytes (TIL). TIL cells are isolated by enzymatic digestion of solid tumor pieces obtained at the time of surgery or biopsy. The TIL cells are expanded in vitro in the presence of IL-2 and reinfused into the patient. Studies in mice have shown TIL cells to be 50 to 100

times more effective than LAK cells on a per cell basis in eradicating various murine tumors.²⁴ Studies using human TIL cells in vitro have produced results similar to the murine studies.²⁵ Clinical trials using the combination of IL-2 and TIL cells are now in progress.

Another promising approach is the combination of IL-2 with other cytokines, such as alpha-interferon (alpha-INF). Alpha-INF induces cancer regression in patients with melanoma or renal cell cancer, as well as other types of cancer.²⁶ Alpha-INF has a different mechanism of action than IL-2; hence the combination of these two cytokines may provide a synergistic effect in treating certain malignancies, particularly melanoma or renal cell carcinoma.²⁶

The combination of IL-2 with chemotherapeutic agents is another technique to enhance the efficacy of immunotherapy. Administering IL-2 stimulates the production of all T-cell subsets (T helper, suppressor and cytotoxic

subsets). Tumor regression is primarily mediated by cytotoxic T cells, and suppressor T cells decrease the activity of cytotoxic T cells. Administering cyclophosphamide before IL-2 selectively depletes suppressor T cells. Administering this cytotoxic drug in conjunction with IL-2 produces clinical responses in patients with disseminated melanoma.²⁷

IL-2 is most effective in treating patients with renal cell cancer or melanoma. IL-2 is expected to be approved soon for clinical use by the U.S. Food and Drug Administration. It already is approved for limited use by the FDA under Group C guidelines for the treatment of metastatic renal cell cancer and is generally used in many European countries. Results of in vivo studies of IL-2 in mice and humans have demonstrated that it mediates the regression of metastatic tumors. Although the overall response rates are relatively modest, it is significant that responses are achieved in patients with metastatic cancers

that are resistant to present forms of therapy.

Immunotherapy of cancer is in its infancy, just as radiation therapy and chemotherapy once were. Continuing efforts will focus on methods to increase the efficacy of immunotherapy while decreasing the side effects and complexity of treatment. When these hurdles are overcome, immunotherapy will fulfill its promise as the fourth modality for treating cancer. ▀

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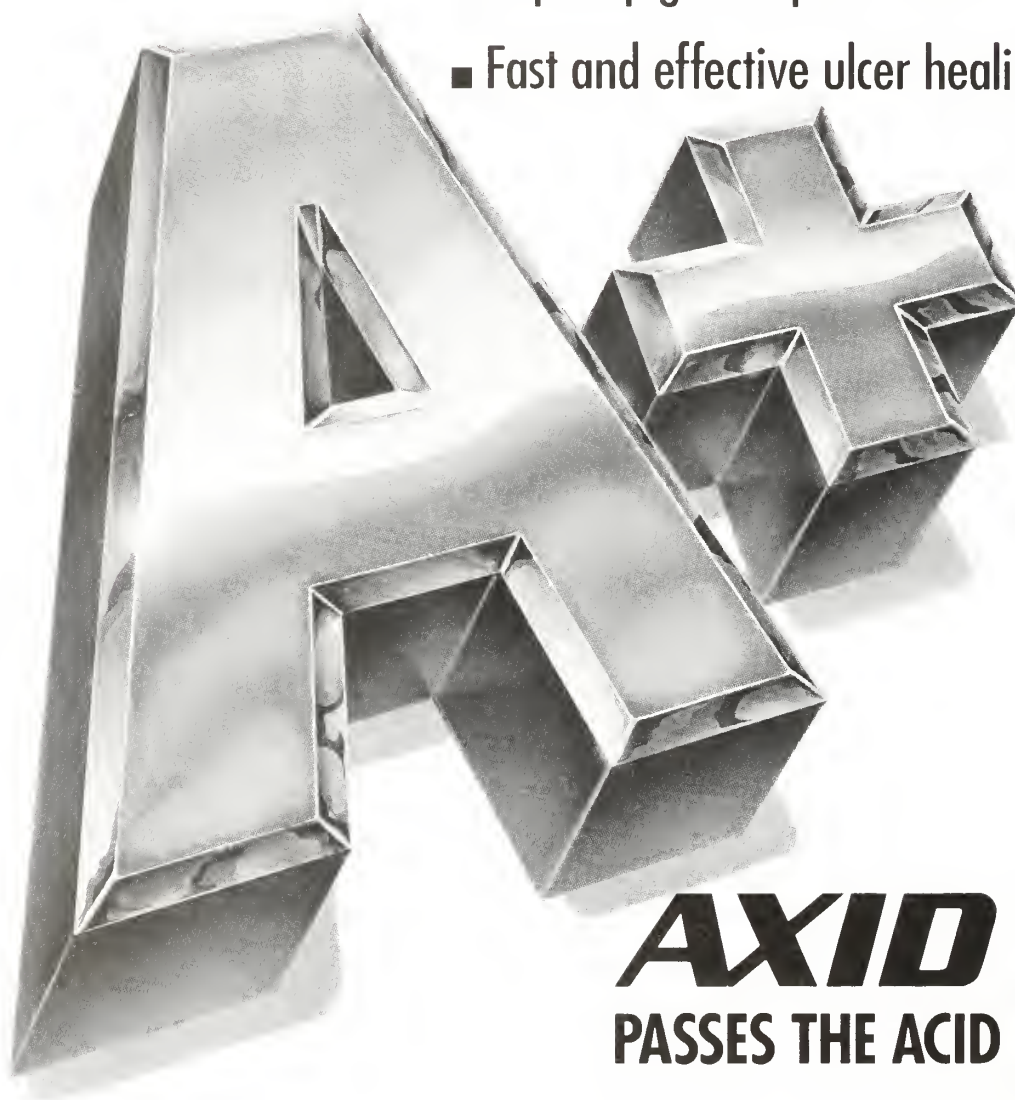
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Contraindications: Known hypersensitivity to the drug. Because cross sensitivity in this class of compounds has been observed, H₂-receptor antagonists, including Axid, should not be administered to patients with a history of hypersensitivity to other H₂-receptor antagonists.

Precautions *General*—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Dosage should be reduced in patients with moderate to severe renal insufficiency.
3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

Laboratory Tests—False-positive tests for urobilinogen with Multistix[®] may occur during therapy.

Drug Interactions—No interactions have been observed with theophylline, chlorazepoxide, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

Carcinogenesis, Mutagenesis, Impairment of Fertility—A 2-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a 2-year study in mice, there was no evidence of a carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a 2-generation, prenatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

Pregnancy—Teratogenic Effects—Pregnancy Category C—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect, but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in 1 fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in 1 fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers—Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

Pediatric Use—Safety and effectiveness in children have not been established.
Use in Elderly Patients—Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,500 nizatidine patients and over 1,300 on placebo, swelling (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events were due to the drug.

Hepatic—Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L) in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to 3 times the upper limit of normal, however, did not significantly differ from that in placebo patients. All abnormalities were reversible after discontinuation of Axid. Since market introduction, hepatitis and jaundice have been reported. Rare cases of cholestatic or mixed hepatocellular and cholestatic injury with jaundice have been reported with reversal of the abnormalities after discontinuation of Axid.

Cardiovascular—In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in 2 individuals administered Axid and in 3 untreated subjects.

CNS—Rare cases of reversible mental confusion have been reported.

Endocrine—Clinical pharmacology studies and controlled clinical trials showed no evidence of androgenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

Hematologic—Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H₂-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumental—Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity—As with other H₂-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported. Other—Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, liver, and nausea related to nizatidine have been reported.

Overdosage: Overdoses of Axid have been reported rarely. If overdosage occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis does not substantially increase clearance of nizatidine due to its large volume of distribution.

References

1. Data on file, Lilly Research Laboratories.
2. *Scand J Gastroenterol* 1987;22(suppl 136):61-70.
3. *Scand J Gastroenterol* 1987;22(suppl 136):47-55.
4. *Am J Gastroenterol* 1989;84:769-774.

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Treatment of sensorineural hearing loss

George W. Hicks, M.D.
J. William Wright III, M.D.
Indianapolis

During the past decade, otologists have focused their attention on identifying and treating sensorineural hearing loss (SNL). Before this time, a loss of hearing due to decreased hearing nerve function was untreatable, except by amplification.

The conquest of middle ear deafness by replacing ossicles, restoring the tympanic membrane or removing diseased tissue using microsurgical techniques has become an accomplished fact. The success in conductive deafness treatment has overshadowed recent progress in hearing improvement in the larger population of sensorineurally deaf patients. Conductive deafness affects only 15% of the 25 million people who are hearing-impaired.

There are nine forms of inner ear disorders causing SNL for which medical/surgical treatment is available. Although responses to treatment vary, any relief is appreciated by the afflicted patient.

This article will review the progress in managing sensorineural deafness and outline nine forms of SNL for which treatment should be instituted (*Table 1*).

Meniere's disease

Meniere's disease is a clear-cut clinical entity characterized by

hearing loss, vertigo, ear fullness and tinnitus. Substantial benefit is obtained from dietary, medical and/or surgical treatments. The major spells can be stopped in more than 90% of patients, and hearing can be improved or stabilized in two-thirds of patients.

All patients are placed on a salt- and caffeine-restricted diet and advised to stop smoking. Other medications such as diuretics, vasodilators and vestibular suppressants can be used. Diazepam frequently is used and is beneficial in the latter category. Meclizine is seldom beneficial.

Surgery is offered to patients who do not improve with medical and dietary therapies. If hearing is salvageable, an endolymphatic sac-mastoid shunt is usually the first choice. The shunt is an outpatient surgical procedure offering more than an 80% chance of controlling dizziness and, especially in the early stages of the disease, about a 60% chance of stabilizing or reversing sensorineural hearing loss. If this procedure fails to control the vertigo

Abstract

Of the 25 million people who are hearing impaired, 85% suffer from sensorineural hearing loss (SNL). In the past decade, the identification and treatment of SNL have evolved from futile efforts to active intervention. This paper identifies nine forms of inner ear disorders causing SNL for which medical/surgical treatment is available. Physicians must realize that, with appropriate diagnosis and treatment, hearing nerve loss can have a satisfactory outcome.

and there is reasonably good hearing, a retro-sigmoid or suboccipital vestibular nerve section is performed to save auditory nerve function.

Intraoperative surgical monitoring is recommended to minimize risk to the facial and auditory nerves. This procedure does nothing to alter the basic disease process in the cochlea and, after a period of time, hearing can deteriorate severely. If no useable hearing is present and tinnitus is severe, total VIIIth nerve section is done to provide relief of tinnitus and vertigo. If tinnitus is not a primary complaint, labyrinthectomy usually is curative.

The goals of therapy today are not only to relieve dizzy spells but also to improve and stabilize hearing.

Perilymph fistula

Perilymph fistula is a leakage of fluid (perilymph) from the inner ear (labyrinth) into the middle ear through the round and/or oval windows. A history of exertion, barotrauma or an audible "pop"

TABLE I
TREATMENT OF SENSORINEURAL HEARING LOSS (SNL)

TYPE	CHARACTERISTICS	*SPECIFIC DIAGNOSTIC TESTS	MEDICAL TREATMENT	SURGICAL Rx	SUCCESS WITH EARLY INTERVENTION
MENIERE'S DISEASE	Fluctuating hearing loss, fullness, tinnitus, episodic vertigo	ECoG Audlogram ENG	Salt, caffeine restriction, cessation smoking, diuretic, vasodilators, vestibular suppressants.	Endolymphatic sac-mastoid shunt Vestibular nerve section Cochleo-vestibular nerve section Labyrinthectomy	80% vertigo control, hearing stabilization 95% vertigo control; hearing preservation 95% vertigo control; no hearing 90% vertigo control; no hearing
AUTOIMMUNE SNL	Rapid hearing loss Possible vestibular sx	Immune screen	Steroids Cyclophosphamide Plasmaphoresis	None	95% control
SYPHILITIC DEAFNESS	Variable; Meniere's-like Sx	FTA-ABS	Steroids Antibiotics	None	Good
COCHLEAR OTOSCLEROSIS	Flat hearing loss Usual family history	CT Scan	Fluoride, calcium, Vit. D	None	Good degree of stabilization
SUDDEN DEAFNESS	Rapid (< 72 hrs) loss of hearing; possible vertigo		Steroids Carbogen I.V. contrast media	None	20-80%
TOXIC DEAFNESS	Hearing loss, tinnitus Imbalance on medication	Posturography Serial Audiometry and ENG	Cessation or reduction of offending medication	None	Variable; depends on particular ototoxic medication
PROFOUND SNL	No hearing; no benefit from amplification	Complete test battery Psychological profile	None	Cochlear Implant	Improved
NOISE INDUCED SNL	Tinnitus; hearing loss after noise exposure	Serial Audiology	Ear protection Possible steroids Hearing Aids	None	Good to excellent with early intervention
PERILYMPH FISTULA	Hearing loss, dizziness	ECoG ENG - Impedance test	Bedrest, stool softeners, cough suppressants	Tympanotomy and fistula grafting	95% dizziness control 50-80% hearing control

*Although all patients receive other diagnostic tests, these tests have great diagnostic specificity.

in the ear at the time of the hearing loss suggests this entity. A fistula within the cochlea also can develop, causing a mixing of the inner ear fluids (endolymph and perilymph). This condition disrupts the delicate balance of electrolytes within the inner ear compartment. Although symptoms characteristically are fluctuating hearing loss alone (15%) or vestibular symptoms alone (12%), both symptoms commonly are present. Developmental anomalies, such as a widely patent co-

chlear aqueduct or cochlear modiolar defects, may predispose the involved ear to this condition.

Historical features suggesting fistula of the inner ear include compressive/decompressive episodes, heavy lifting or straining, head injury or stapedectomy. Conservative treatment consists of bed rest, stool softeners and avoiding heavy lifting, coughing or straining. Sensorineural hearing loss that continues to progress, with or without positional vertigo and ataxia while

walking, indicates the need for surgery. A tympanotomy with tissue sealing of the oval and round windows will eliminate dizzy symptoms in 95% of patients and improve or stabilize hearing in 50% of patients.

Autoimmune sensorineural deafness

Autoimmune sensorineural deafness is a treatable form of severe hearing loss when the body's immune system attacks and progressively destroys the inner ear. Re-

ports indicate that it may involve patients of any age. It may take the form of sudden or fluctuating hearing losses. Any patient with a bilateral or asymmetric sensorineural deafness for which the cause is not readily apparent is suspect for this disease. It is important to recognize it since there is no treatment other than immunosuppression that may salvage or restore hearing. Without treatment, all hearing is lost.

Any patient suspected of having this disease should have an immune screen (sedimentation rate, rheumatoid factor, anti-nuclear antibody with and without culture cells and quantitative IgA and IgG). If any two of these are positive, treatment should be started.

Our treatment is dexamethasone, 16 mg daily in divided doses for a period of approximately three months before tapering the medication begins. Twice-weekly audiograms are used to monitor the patient. In severe bilateral cases, some investigators have used cyclophosphamide infusion. We have not needed to use this medication. Patients who cannot tolerate steroid therapy are candidates for plasmaphoresis.

Identifying this cause of sensorineural deafness is of paramount importance since it can be reversed totally.

Syphilitic deafness

Sensorineural hearing loss due to syphilis has been around for years. The benefits of steroid therapy after appropriate antibiotic treatment are well-documented. This form of deafness and vertigo may mimic Meniere's disease; thus, all patients suspected of Meniere's must have appropriate testing for tertiary syphilis. A fluorescent treponemal antibody/absorbed is sug-

Table 2

The medications listed below have toxic effects on the hearing or balance function of the inner ear. The prescribing physician should consult the *Physicians' Desk Reference*, a pharmacist or similar source before prescribing these medications.

This list is not exhaustive but provides guidance in using some common medications. Hearing and balance function monitoring is recommended when potentially ototoxic medications are used.

AMINOGLYCOSIDE ANTIBIOTICS

<u>Chemical name</u>	<u>Trade name</u>
Streptomycin	—
Neomycin	Mycifradin, Neobiotic
Kanamycin	Dantrex, Klebcil
Tobramycin	Nebcin
Paromomycin	Humatin
Gentamicin	Garamycin
Sisomicin	Sispetin
Amikacin	Amikin
Netilmicin	Netromycin

CHEMOTHERAPEUTIC AGENTS

<u>Chemical name</u>	<u>Trade name</u>
Cisplatin	Platinol

SALICYLIC ACID DERIVATIVES

<u>Chemical name</u>	<u>Trade name</u>
Aspirin	Various (effects reversible)

OTHER ANTIBIOTICS

<u>Chemical name</u>	<u>Trade name</u>
Vancomycin	Vancocin
Erythromycin	Various (rarely ototoxic)
Capreomycin	Capastat (rarely ototoxic)

METAL ANTAGONIST

<u>Chemical name</u>	<u>Trade name</u>
Deferoxamine	Desferal (usually reversible)

LOOP DIURETICS

<u>Chemical name</u>	<u>Trade name</u>
Ethacrynic acid	Edocrin
Furosemide	Lasix
Bumetanide	Bumex

DRUG COMBINATIONS

Neomycin	Aminoglycoside
Polymyxin B	Loop Diuretics
Dexamethasone	

gested.

Steroid therapy eliminates vertigo and allows patients to hear for up to 10 years. Steroid therapy every other day can provide relief without significant side effects.

Cochlear otosclerosis

Cochlear otosclerosis is characterized by a flat audiometric loss and good to excellent speech understanding and starts in the third or fourth decade of life. Although a positive family history of proven stapedial otosclerosis is usually present, this is not necessary. This type of hearing nerve loss can be arrested (85%) or even reversed (15% of the 85%) with appropriate doses of daily fluoride, Vitamin D and calcium. Since fluoride therapy can prematurely close the epiphyseal plate in developing bones, it must be used with caution in children or pregnant women.

Sudden deafness

Sudden hearing loss is defined as a loss of at least 30 dB in three contiguous frequencies in less than 72 hours and occurs in about 10 people per 100,000 per year. Both men and women are affected, with an average age of 43 years at onset. In most cases, the etiology cannot be determined. Most commonly, the sudden loss is attributed to either viral infection or compromised circulation to the inner ear.

Our treatment for this idiopathic loss is primarily steroid therapy. The prognosis for recovery depends upon: 1) the hearing loss configuration; 2) the patient's age; 3) the degree of vestibular injury defined by the electro-nystagmogram; 4) the presence or absence of vertigo; and 5) the duration of the loss. Patients with a mild mid-frequency hearing loss

often recover all of the lost hearing. Patients with a moderate sensorineural hearing loss will have a partial recovery rate, ranging from 40% to 80%. Patients with severe to profound loss have a 20% chance of recovery.

Administering intravenous iodinated contrast media is another treatment that we have used for sudden idiopathic hearing nerve deafness. Inhaling carbogen (95% O₂ and 5% CO₂), which has a strong vasodilating effect, also has been useful.

Toxic deafness

Physicians must be aware of the potentially toxic effects of medications on the hearing and balance nerves of the inner ear. Aminoglycosides and loop diuretics are especially hazardous, especially when used in combination. Chemotherapeutic agents, such as cisplatin, are capable of producing a devastating effect on the auditory/vestibular apparatus. Preoperative audiometric and vestibular testing with close monitoring during treatment is strongly advised. Potentially dangerous medications are listed in Table 2.

Profound sensorineural deafness: Cochlear electrode implant

Total bilateral hearing nerve deafness is untreatable with the most powerful means of hearing aid amplification but can be treated with cochlear electrode implants. Although there are not many suitable candidates, selected centers can provide this treatment for adults and children with total deafness.

Noise-induced hearing loss

Sensorineural hearing loss due to loud noise exposure can be arrested in its early stages and reversed with appropriate sound

protection devices and, occasionally, with medication. The early warning signs after noise exposure include fullness in the ear, tinnitus and a temporary decrease in hearing and should be seriously addressed.

Evaluation

As with all medical disorders, a thorough history forms the basis for diagnosis and treatment. Particular attention is paid to antecedent ear disease or surgery, trauma, activity at the time of onset and symptoms of hearing fluctuation, tinnitus, vertigo and ear pressure. Physical examination should include microscopic ear examination and neurological examination. Audiologic evaluation should include measuring the air and bone conduction with speech discrimination. Auditory brain stem responses will show the status of eighth nerve and brain stem structures if hearing is not too depressed.

Electrocochleography (ECoG) measures the electrical activity within the cochlea in response to sound stimuli. It can distinguish between nerve loss originating in the cochlea versus the eighth nerve or higher structures. Meniere's disease often gives a distinctive signature on ECoG. Vestibular evaluation consists of electronystagmography (ENG) and a fistula test with ENG-impedance testing if fistula is suspected. Posturography often is helpful in cases of confusing balance findings. Radiologic studies include magnetic resonance imaging (MRI) and computed tomography (CT). MRI is used when a tumor is suspected, and CT may be helpful if a fracture or other bony abnormality is suspected. Laboratory work consists of an FTA/ABS, complete blood count and erythrocyte sedimenta-

tion rate, unless a specific clinical entity is suspected.

Summary

Sudden or rapid progressive sensorineural hearing loss is an otologic emergency demanding expeditious evaluation and initiation of therapy if the patient's hearing is to be preserved. Nine distinct entities have been identified in which a patient's hearing can be preserved, stabilized or restored to normal. Early intervention is of great importance. ▮

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Immunization status of 2-year-olds in a prepaid health care system

Mary Jo Stine, M.D.
Indianapolis

Immunization has markedly decreased morbidity and mortality from vaccine-preventable communicable disease. Nonetheless, large gaps in immunization coverage exist. Surveys in 1977 indicated that 30% to 40% of children ages 1 to 4 were inadequately immunized. In that year, the federal government began the Immunization Initiative to increase the level of immunization to greater than 90% among school children. Immunization rates improved but inadequacies persisted among preschool children; requirements for immunization were mandated to enter school but not for preschoolers, unless they were in day care.¹

No satisfactory approach to determining immunization levels among preschool children exists.² From 1959 to 1985, the Centers for Disease Control contracted with the Bureau of Census to carry out the U.S. Immunization Survey. These statistics were obtained through telephone surveys of parental recall, and their accuracy was questionable.

The 1990 health objectives for the nation included the following goal: At least 90% of all children by age 2 should have completed their immunization series for

measles, mumps, rubella, polio, diphtheria, pertussis and tetanus. In the 1985 U.S. Immunization Survey, only 77% of 2-year-olds had received their basic series.^{3,4}

Immunization compliance is influenced by many factors, including socioeconomic status,⁵ parental attitudes and knowledge about immunizations, mobility, concern about adverse reactions⁶ and access to care. These barriers, however, should be minimized in a prepaid health care system where the emphasis is on prevention, and office visits and immunizations are covered benefits. Theoretically, immunization rates should approach 100% in a prepaid health care system.

This study was undertaken to assess the immunization compliance in a stable population of 2-year-olds in a prepaid health care system. Deficiencies were evaluated to identify problems that

Abstract

The immunization compliance among 2-year-olds in a prepaid healthcare system in Indianapolis was studied. Since appointments and immunizations are covered benefits, immunization rates should approach 100%; complete immunizations were found in only 72%. Problems identified included transient membership, failure to determine immunization status on patients, reluctance to administer immunizations to children with mild illnesses, asking patients to return for administration of immunizations without a physician exam and record-keeping errors.

could be corrected by the system.

Methods

The medical charts from all 2-year-old patients from MetroHealth at Lafayette Square in Indianapolis were reviewed. These patients were current members who were between their second and third birthdays at the time of the study (July 1990). The following information was noted for each patient: name, date of birth, immunizations administered and any reasons for noncompliance.

A complete immunization status required documenting that the following immunizations had been administered: four diphtheria-pertussis-tetanus shots, with a minimum of six months between the third and fourth; three oral polio vaccines; one measles-mumps-rubella injection; and one immunization for *Hemophilus*

influenzae.

Results

Complete immunizations were documented in 72% of the 136 patients (Table). Of those patients whose immunization status was known, 86% were complete for polio and diphtheria-pertussis-tetanus, 88% for measles-mumps-rubella and 83% for *Hemophilus influenzae*.

Incomplete immunizations were apparent for many reasons. One recurrent problem identified in the review was a lack of well-child visits; the patient may have been seen many times but only for crisis (sick) visits. Another problem was the lack of follow-through when a family was instructed to bring the child back for the nurse to administer the immunization at a later date. In two cases, immunizations were refused by the parents.

Discussion

The immunization rates at MetroHealth compare favorably with published statistics.⁴ Whereas only 77% of 2-year-olds in the United States in 1985 had received a full set of immunizations against polio, compliance in the prepaid health care system was 86%. Measles-mumps-rubella rates also were better, 88% as compared to approximately 79%. Nonetheless, immunization rates can and should be better in the prepaid health care system.

Several problems become apparent when discussing immunization compliance in 2-year-olds. Immunizations are not enforced in this younger age group. Mandating immunization compliance at school entry is convenient but can result in immunizations being postponed until the child is ready for school. Children need protection via immunizations from diseases when they are

young and most susceptible.

Another problem in the American health care delivery system is mobility.⁷ Transient participation in various systems make it difficult to interpret compliance data and to implement immunization programs. Pursuing previous records can be costly and time-consuming. If a patient received medical care from multiple sources, it may be difficult to accurately determine the immunization status. Health care providers can help by releasing immunization records quickly and without a charge.

Often physicians are reluctant to give immunizations when a patient has a mild illness. Children, especially those in day care centers who would benefit most from immunizations, frequently have minor illnesses. Continually deferring immunizations results in immunization delay. The Red Book⁸ states that minor, nonfebrile illnesses should not contraindicate the use of vaccines. In children with acute, febrile illnesses, live viral vaccines can still be given, but diphtheria-pertussis-tetanus is contraindicated.

Health care providers must convey the necessity of each immunization and that each should be administered on time.⁶ To help improve immunization rates, tracking systems should be used to remind patients that immunizations are due, and cancelled appointments should be rescheduled. All applicable immuniza-

tions should be given simultaneously.⁹ Immunization records, which have been shown to improve compliance,¹⁰ should be given to all patients. If patients will not return for only immunization administration, noted several times in this study, scheduling a return physician visit may improve compliance.

Improving immunization compliance is a priority. Two-year-olds continue to be inadequately immunized, despite the availability of immunizations. This study challenges health care providers to administer immunizations at every opportunity, to vigorously pursue previous immunization records and to provide information on the immunization status of former patients if requested. The importance of immunizations should be stressed to parents, and immunization records should be given to patients. □

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Table

Results of chart review

Eligible patients	136
Complete immunization	98 (72%)
Incomplete immunization	27 (20%)
Immunization status unknown	11 (8%)

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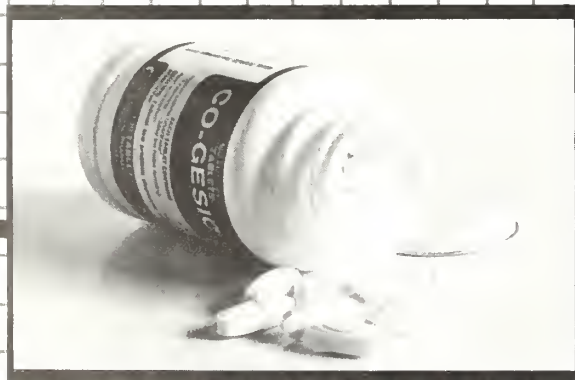
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The value of assays in tricyclic antidepressant therapy

Courtney G. Clower, M.D.
Lafayette

Therapeutic drug monitoring with tricyclic antidepressants (TCA) has an established role in ensuring effective plasma concentrations but may be even more important in avoiding toxicity problems, analogous to lithium therapy in bipolar affective disorder. A 10-30 fold difference in TCA plasma concentrations is found routinely between the fastest and slowest TCA metabolizers who are receiving the same dose of a given drug.¹ Toxicity will predictably occur in up to 5% of patients on "standard antidepressant dosages" of TCAs when drug monitoring is not done.¹ TCAs have serious and potentially fatal effects on the heart (e.g., delayed intracardial conduction and rhythm disturbances) and on the brain (i.e., delirium and seizures). Central nervous system (CNS) toxicity can be particularly treacherous since it can be interpreted as worsening of the psychiatric disorder.²

There is an 85% chance of developing an amitriptyline-induced delirium when the plasma amitriptyline concentration exceeds 450 ng/ml, and a 35% chance with plasma TCA concentrations above 300 ng/ml.¹ Asymptomatic amitriptyline-induced electroencephalographic

changes occur with plasma concentrations above 350 ng/ml.¹ Overdose data indicate that coma and seizures routinely occur when TCA concentrations exceed 1,000 ng/ml.¹ Finally, the apparent optimal plasma drug for TCAs is 300 ng/ml, and only 150 ng/ml for nortriptyline.²

Concomitant neuroleptic therapy causes a 50% to 100% increase in TCA concentrations.² Neuroleptic drugs are prescribed frequently with TCA in patients with severe depression. The neuroleptic thioridazine inhibits the metabolism of TCAs even in the low dosages.³

This study has as its main goal to determine whether TCA dosages regarded as effective in treatment of endogenous depression and panic disorder, i.e., 100-300 mgm per day, are associated with a significant percentage of

Abstract

Studies are reviewed showing that neurotoxicity can be associated with plasma tricyclic antidepressant (TCA) assays above 350 ng/ml. The objective of this study was to develop guidelines in the use of plasma TCA assays from analysis of data of the treatment of patients with endogenous depressions and panic disorders with TCA dosages of 100-300 mgm per day. A total of 38.5% of a small group of patients treated with TCAs and concomitant neuroleptic therapy had plasma assays above 350 ng/ml; 16.7% of a larger group of patients treated with TCAs alone had assays above that level. Guidelines discussed for the use of plasma TCA assays come from analysis of the data and case vignettes.

TCA assays above 350 ng/ml, particularly if concomitant neuroleptic therapy is employed. The study also was designed to identify all patients with TCA-induced neurotoxicity as well as "fast TCA metabolizers." Such data would suggest guidelines for the use of and need for plasma TCA assays.

Methodology

During an 18-month period, all patients with TCA plasma assays were identified, and the case histories reviewed by the author. To be included in the data analysis, patients 18 years of age and above must have been on TCA dosages from 100 to 300 mg per day for at least seven days, and the blood drawn eight to 12 hours after the last TCA dosage. Plasma assays were done by the Emit method, which has cost advantage but

some sensitivity limitations¹ in low concentrations. A "fast TCA metabolizer" is defined as a patient in whom plasma TCA concentrations are less than 50 ng/ml with TCA dosage of at least 150 mg per day.

Results

In this study, 43 patients varying in age from 18-76 years were identified. As can be seen in the Table, 38.5% of a small group of patients with TCA dosages of 100-300 mg per day and concomitant neuroleptic therapy had initial plasma assays above 350 ng/ml. A total of 16.7% of a larger group of patients with TCA dosages of 150-300 mg per day had initial plasma assays above 350 ng/ml. As an aid in understanding the results and discussion, four brief case vignettes are presented.

1) Ms. A was a 32-year-old treated effectively with desipramine 300 mg hs for several months for a major depressive disorder. The patient then was admitted for a brief stay at a general hospital with an acute delirium. When a desipramine assay was reported at 625 ng/ml, suggesting a slow metabolizer, the dosage was decreased to 150 mg hs. The patient had a recurrence of depressive symptoms. A repeat assay was slightly below therapeutic range (73 ng/ml). The desipramine dosage was increased to 200 mg hs, and the depression abated. Another desipramine assay was 135 ng/ml.

2) Mr. B was a 58-year-old man admitted with a psychotic depression. Because previous depressions had not responded to high dosage TCAs and were considered to be "refractory," lithium therapy augmentation had been done. There was a partial response to desipramine 150 mg. hs

Table		
Number of patients	Under 350 mg/ml	Over 350 mg/ml
13*	8	5
30**	25	5

* = Initial TCA dosage 100 to 300 mg per day plus neuroleptic
 ** = Initial TCA dosage 150 to 300 mg per day.

and perphenazine 8 mg hs. A desipramine assay was reported as less than 50 ng/ml, suggesting a "fast" metabolizer. Further improvement occurred with an increase in desipramine to 200 mg hs. A repeat assay was 78 ng/ml. Recovery occurred with a desipramine increase to 300 mg hs.

3) Ms. C was a 27-year-old woman treated effectively with desipramine 150 mg hs and thioridazine 50 mg TID for a major depressive disorder. When a desipramine assay was reported as 597 ng/ml, thioridazine was decreased to 50 mg BID. A subsequent desipramine assay was 275 ng/ml. The patient continued to be free of depression.

4) Ms. D was a 52-year-old woman treated effectively with desipramine 150 mg hs for a major depressive disorder. When a desipramine assay was reported as 494 ng/ml, desipramine was decreased to 100 mg hs. A subsequent desipramine assay was still elevated (373 ng/ml) and desipramine was decreased further to 75 mg hs. The patient continued to be free of depression.

Discussion

Failure to do plasma assays has been the central issue in some recent malpractice cases involving TCA-associated toxicities.¹ The data in this study can be inter-

preted as indicating that it is "state-of-the-art" to do plasma TCA assays in patients treated with dosages of 150-300 mg per day. With concomitant neuroleptic therapy, assays should be done with dosages of 100-300 mg per day.

Another recent malpractice suit involved a psychiatrist who was persuaded by a patient to continue the TCA dosage despite a TCA assay of 800 ng/ml.² After the patient experienced a TCA-associated seizure while driving a motor vehicle, a malpractice suit was filed. The physician was said to be negligent in not reducing the TCA dosage. The data in this study and others² suggest that TCA dosages should be decreased immediately with assays above 450 ng/ml and even above 350 ng/ml. As noted earlier,² there is no benefit in prescribing TCA dosages associated with plasma assays above 300 ng/ml.

As exemplified by Ms. C, this study suggests that with concomitant neuroleptic therapy, a useful initial strategy might be to reduce the neuroleptic dosage and then obtain another plasma assay. As shown by Ms. D, a prudent therapeutic approach is to decrease the TCA dosage until the plasma assay falls below 350 ng/ml. As seen with Mr. B, there is a small percentage of patients who are "fast TCA metabolizers." Such

patients should not be considered as "refractory," warranting augmenting drug strategies such as lithium therapy, unless TCA assays are clearly in the therapeutic range.

In summary, TCA plasma assays are useful in identifying "slow" and "fast" TCA metabolizers. This study and others demonstrate that it has become a standard of care issue for TCA assays to be done with dosages of 100-300 mg per day, particularly with concomitant

neuroleptic therapy. Both failure to do assays in those cases or to decrease dosages (TCAs or neuroleptics) with assay levels may be considered negligence in malpractice actions when associated with TCA-induced serious neurotoxicity. □

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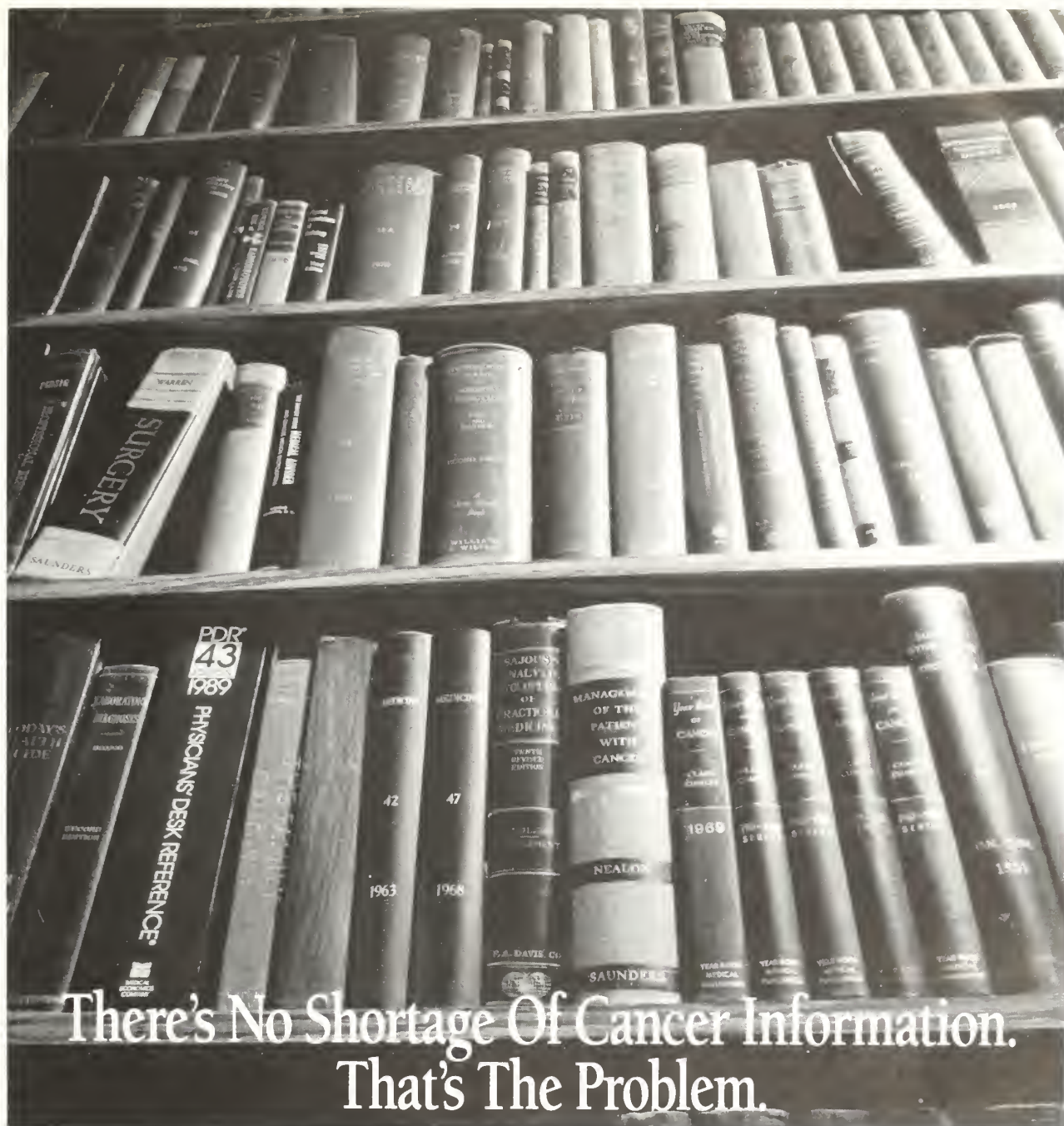


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Man with progressive lower back pain

Mark C. Arvin, M.D.
Randy L. Gehring, M.D.
Jeffrey L. Crecelius, M.D.
Maria F. Curfman, M.D.

A 43-year-old man with lower back tenderness and left lower extremity pain was examined. Clinical history revealed that the patient worked as a pipe fitter, a job that requires heavy lifting, and the symptoms began one month earlier while he was lifting a lawn ornament. The patient reported moderate clinical

improvement but reinjured his back in the shower, causing him to seek medical advice.

The physical exam was consistent with a left S-1, radiculopathy, and the patient was treated conservatively with bedrest. The patient grew symptomatically worse, and a hard, tender lump of the lower lumbar spine was found on palpation during the follow-up exam. At this time, the patient was referred to neurosurgery for evaluation.

Plain films of the lumbar spine revealed destruction of the

left pedicle of L-5 (Figure 1). Magnetic resonance imaging (MRI) of the lumbar spine showed a large mass of moderate to high-signal intensity with destruction of the posterior elements of L-5 and extensive epidural extension inferiorly (Figure 2). A lumbar myelogram demonstrated effacement of the thecal sac with displacement anteriorly and to the right. A subsequent lumbar computed tomograph (CT) again demonstrated destruction of the laminae and left pedicle of L-5, with a 6 cm soft tissue mass extending



Figure 1: Lumbar spine film with destruction of the left pedicle of L-5 (arrow).



Figure 2: Coronal MRI of the lumbar spine showing a large mass posterior to L-5 (arrow).

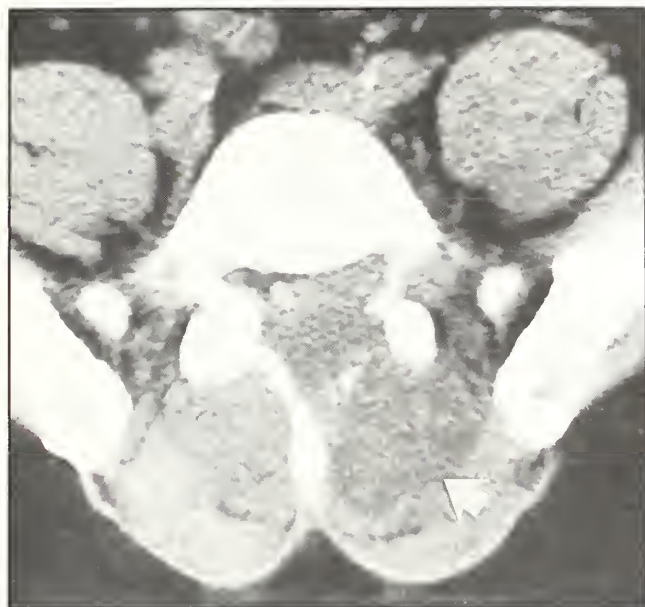


Figure 3: Lumbar CT showing destruction of the posterior elements of L-5 (arrow).



Figure 4: Chest CT showing the infiltrate in the left lower lobe (arrow).

into the spinal canal as well as the left posterior paraspinal musculature (Figure 3).

The patient was scheduled for surgical exploration and biopsy. Preoperative chest radiographs revealed a left lower lobe infiltrate. CT of the chest confirmed a left lower lobe infiltrate with multiple air bronchograms and mild left hilar adenopathy (Figure 4). Laboratory studies were significant only for a leukocytosis. The patient subsequently had surgery.

The differential diagnosis was metastatic disease, or epidural abscess.

Diagnosis

Surgical exploration revealed a large pocket of pus involving the paraspinal musculature and epidural space. The abscess was drained, and the area was locally debrided. Microscopic examination of the abscess contents revealed yeast-like organisms with broad-based buds consistent with

Blastomyces dermatitidis.

North American blastomycosis is an uncommon infection that typically affects an immunologically intact host. It is a dimorphic fungus, growing as a mycelium in culture but proliferating like a yeast at 37°C with characteristic broad-necked buds. Like coccidioidomycosis, it has a regional incidence and most commonly occurs in the central and southeastern United States. In particular, it is endemic to the Ohio, Mississippi and Missouri river valleys as well as the western shore of Lake Michigan.¹

North American blastomycosis proliferates in the soil. Most infections are acquired in wooded areas by inhaling airborne spores.² This accounts for the increased incidence in hunters and rural populations. Blastomycosis is equally prevalent in dogs, leading some to speculate that the disease may be acquired by contact with an infected dog.

This route of transmission is of minor importance.

The lungs and skin are the principal sites of infection. Approximately 20% will demonstrate genitourinary involvement, with bone involvement noted in 25% to 50%. Infections are largely subclinical; however, there is a higher incidence of symptomatic infections than seen in histoplasmosis. One series showed 50% of seropositive subjects to be asymptomatic following documented exposure, while one-third had mild fever, cough and malaise.³ A chronic form, clinically similar to tuberculosis, also is possible.

Pulmonary involvement is non-specific and classically manifests as a nonsegmental bronchopneumonia with acute air-space involvement leading to consolidation. There is a slight upper lobe predominance. Cavitation is uncommon and seen in less than 15%. The next most common

presentation is single or multiple masses that may mimic carcinoma, especially if there is coexisting adenopathy or bone destruction. Nodular interstitial involvement is uncommon. A miliary pattern is possible but rare. Microscopically, there is a suppurative phase followed by a granulomatous phase, although these will frequently coexist. Infection may disseminate systemically from the lungs or invade the chest wall by direct extension.

Skin involvement is at least as common as pulmonary involvement, either by direct inoculation of a wound or secondary to systemic spread. Clinically, marked hyperplasia of the epidermis is seen, which will characteristically overlie dermal or subcutaneous pyogenic or granulomatous inflammation. It may even be mistaken for a neoplasm. Chronic draining sinuses or ulcerative lesions are possible sequelae.

Bone involvement is common and occurs by hematogenous spread or direct extension. It is seen most commonly in the vertebrae, ribs, tibia, carpus or tarsus.⁴ Radiographic findings are nonspecific. Bone lesions demonstrate periostitis and osteoporosis and vary from a moth-eaten pattern to

cystic destructive lesions with sclerotic margins. Vertebral involvement closely mimics that of spinal tuberculosis with destruction of vertebral bodies or posterior elements with an associated soft tissue mass.⁵ Joint involvement secondary to metaphyseal or epiphyseal spread is not uncommon as is most often seen in the knee and ankle. This prompted Resnick to characterize the pulmonary-cutaneous-arthritis triad of North American blastomycosis.

Treatment is required for chronic pulmonary disease or systemic dissemination. Antifungal agents such as amphotericin B are essential. Local debridement with abscess drainage may be necessary for bone or skin involvement and is particularly necessary with spinal involvement. Diagnosis is by serum titers or by scraping lesions or collecting sputum with microscopic examination after 10% potassium hydroxide. The prognosis generally is excellent.

After surgery, the patient's pain rapidly diminished, and he was able to walk in the hallway without assistance two days after surgery. The patient was discharged following the placement of a central venous line for home

amphotericin B administration. The pulmonary infiltrate resolved and was not evaluated further. ▀

Dr. Arvin is a neuroradiology fellow at the Indiana University Medical Center in Indianapolis. Drs. Gehring and Crecelius are neurosurgeons, and Dr. Curfman is an internist, all at the Arnett Clinic of Lafayette.

Section editor: Robert D. Tarver, M.D., Department of Radiology, Wishard Memorial Hospital, Indiana University Medical Center, 1001 W. 10th St., Indianapolis, IN 46202.

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New program enables physicians to provide care to HIV patients

Paul Chase
Indianapolis

June 1, 1991, marked a historic event for Indiana and the nation concerning the care and treatment of persons living with HIV disease. Beginning in June, federal funds were made available to finance a range of early intervention services for HIV-infected people. Eligible people must meet certain financial guidelines and must be uninsured or underinsured. The program is not available to Medicaid recipients.

The funding source for the Indiana HIV Early Intervention Program (EIP) is a grant from Title II of the Ryan White C.A.R.E. Act enacted by Congress in 1990. Approximately \$621,000 is available for Indiana residents for fiscal year 1991. This amount was determined according to a formula grant based on the number of reported cases of AIDS and will increase proportionately in subsequent years.

Two components are being funded under this program, administered jointly by the Indiana State Board of Health and the Indiana Department of Public Welfare. One component uses funds to expand the state-administered AIDS Drug Assistance Program (ADAP). Financed exclusively with federal money, this program previously subsidized Retrovir (AZT) for eligible people.

As of June 1, 1991, ADAP began paying for a second category of U.S. Food and Drug Administration-approved therapeutic drugs that have been determined to prolong life or prevent the serious deterioration of health from HIV disease. Drugs such as Pentamidine, Septra, Bactrim, Leucovorin and Dapsone are included in this category.

Under the other component, funds are being used to help HIV-positive people to access primary health care and other medical, laboratory, dental and supportive services. EIP will reimburse enrolled providers for a limited number of services specified in an

an important first step in the implementation of a major recommendation set forth in the *HIV/AIDS Health and Human Services Plan for Indiana*. This plan was developed last year through a federal grant to the Indiana State Board of Health, which in turn subcontracted with The Damien Center, the largest AIDS service organization in Indiana.

The Damien Center in Indianapolis developed this plan with the assistance of more than 800 people from the public and private sectors throughout Indiana. Its 259 recommendations are based on a multidimensional HIV needs assessment that included a

consumer survey, focused discussion groups with both consumers and service providers, interviews with key informants and task force analysis.

The services plan promotes a comprehensive,

coordinated and statewide approach to the delivery of a full continuum of health and human services to people living with HIV disease.

As a prerequisite to identifying service needs and associated costs to augment existing programs or develop new ones, it was necessary to more accurately determine the number of persons living with HIV/AIDS in Indiana and to project increases through 1992, the time period covered by the plan. Statistics issued by the

Statistics issued by the Indiana State Board of Health revealed that more than 82% of the estimated 17,500 HIV-infected people in the state in 1990 had not been tested and were unaware with any certainty of their seropositive status.

HIV protocol that has been developed for this purpose by the Midwest AIDS Training and Education Center (MATEC/Indiana). Providers must agree to follow the HIV medical protocols and to accept the program's reimbursement as payment in full for covered services.

The Indiana HIV Early Intervention Program is occurring at a strategically significant time in the development of more comprehensive services for persons affected by HIV disease. It also represents

Indiana State Board of Health revealed that more than 82% of the estimated 17,500 HIV-infected people in the state in 1990 had not been tested and were unaware with any certainty of their seropositive status. As a result, many recommendations focus on the need to educate people about behaviors that place them at increased risk of infection to encourage more people to receive risk reduction counseling and HIV antibody testing. Similarly, a major objective of the state plan is to establish services that people in earlier stages of HIV disease can access once their HIV-positive serostatus is determined. The EIP makes this possible through financial assistance for the many people with no other resources to pay for such care.

The Damien Center is now engaged in a program that seeks to implement many of the plan's recommendations through a steering committee and a series of working groups in key service areas.

The willingness of primary care physicians to treat HIV-infected people is a vital concern. The needs assessment revealed that most HIV-infected people were being treated by the few infectious disease specialists within the state. These physicians indicate that their services are being over-utilized despite the fact that many of their clients' needs can be met by primary care physicians.

In view of projected increases in known cases of HIV infection, infectious disease specialists cannot be expected to manage new cases, nor do the service needs of these people require the expertise of infectious disease specialists in most cases. Instead, the burden of caring for HIV-infected people must be distributed more evenly among primary care physicians throughout the state.

The EIP provides a mechanism for accomplishing this objective. Through the availability of treatment protocols and reimbursement procedures, incentives

are now in place to encourage physicians to care for people living with HIV disease.

However, the EIP cannot change attitudes among service providers concerning HIV infection and AIDS. As long as discrimination exists, a growing number of people will find it difficult to access life-prolonging services. While the HIV Services Implementation Program for Indiana will continue to advocate against discrimination, the service provider community is being challenged through the EIP to fulfill its obligations to people in need of vital services.

Only time will allow us to measure the success of this new program. Unfortunately, people living with HIV disease do not have the luxury of time. □

Paul Chase is program director of the HIV Services Implementation Program at The Damien Center in Indianapolis.

Look-alike and sound-alike drug names

	SOMATREM	SOMATROPIN
Category:	Growth hormone	Growth hormone
Brand name:	Protropin, Genentech	Humatrope, Lilly
Generic name:	Somatrem	Somatropin
Dosage forms:	Powder for injection	Powder for injection
	SULFADIAZINE	SULFASALAZINE
Category:	Sulfonamide	Sulfonamide
Brand name:	Sulfadiazine (various)	Azulfidine, Pharmacia
Generic name:	Sulfadiazine	Sulfasalazine
Dosage forms:	Tablets	Tablets, oral suspension

■ drug names

Benjamin Teplitzky, R. Ph.
Brooklyn, N.Y.

Look-alike and sound-alike drug names can be misinterpreted by a nurse reading doctors' orders or by a pharmacist compounding physicians' prescriptions.

Such misunderstandings can result in the administration of a drug not intended by the prescriber. Awareness of such look-alike and sound-alike drug names can reduce potential errors. □

■ the wounded healer

Fentanyl – Cocaine of the '90s?

Kete Cockrell, M.D.
Plainfield, Ind.

Fentanyl and fentanyl derivatives are effective, if not essential, adjunctive agents in the practice of anesthesiology. Until recently, fentanyl administration was almost exclusively an operating room event. In this setting, where narcotics are rigidly controlled and operating room personnel are closely supervised, opportunities to divert the drug are limited. However, despite controls and supervision, most chemically dependent anesthesiologists diagnosed in the last three to five years list fentanyl as their drug-of-choice and admit to diverting fentanyl from operating room supplies.

Fentanyl is no longer exclusively administered in the operating room. A fentanyl trans-derm patch is being marketed to treat chronic pain syndrome. Emergency rooms, surgery centers and outpatient clinics are using fentanyl and fentanyl derivatives during outpatient surgical and diagnostic procedures. Generally, narcotic control and personnel supervision in these settings are significantly less effective than in hospital-based operating rooms. Consequently, more physicians and other health care professionals are being exposed to fentanyl in environments with less control and supervision. Predictably, diversion for experimental use with resulting abuse and, possibly, dependence will increase accordingly.

Experimental use of fentanyl is triggered by curiosity, association and availability. Observing the relief and euphoria exhibited by patients receiving fentanyl arouses a health care profes-

sional's curiosity. He wonders what it would be like to relieve his emotional and physical discomfort and experience the euphoria as a bonus. Daily association with repeated administrations and observed results increases the curiosity and rationale for use. Eventually, the intellectual and psychological conditioning necessary to motivate usage is achieved. Once motivated to use chemicals, people frequently work through the desire to use due to the inaccessibility of the chemicals. However, with fentanyl, the drug is essentially in hand, negating this important deterrent to diversion and use.

The first experience with fentanyl has been described as an "incredible erotic and ecstatic high, surpassing any prior similar feelings and fulfilling one's fantasies." The high is fleeting, lasting less than 10 minutes, and immediately followed by a craving for more of the drug and a desire to re-experience the "unbelievable high." The cycle of desire, use, high and craving is established with the **first** use and continues. Fentanyl addicts say they use the drug to try to recapture that first high but were **never** successful.

Understanding the physiology of fentanyl explains the events surrounding a person's first use of the drug. Fentanyl usually is administered intravenously. Onset of action is within seconds. Therapeutic effects are achieved with minimum amounts of the drug. Half-life is short due to its distribution characteristics. Side effects are negligible at therapeutic dosage levels. Because it is a synthetic narcotic, the drug is addictive, and significant tolerance develops with each dose administered.

Along with its addict-attrac-

tive physiology, fentanyl is considered a "designer drug" by drug users. Fentanyl addicts consider themselves "drug connoisseurs" and occupy a self-appointed, higher social class than other "druggies." They feel superior and frequently feed their denial and resistance to treatment by claiming that treatment programs designed for other addictions cannot possibly be effective for fentanyl addicts because of their uniqueness.

Similarly, cocaine addicts have described cocaine as designer, unique, erotic, ecstatic and upper-class. An addict's first cocaine "high" has been described as "overwhelmingly erotic and ecstatic." Onset of action is 7 seconds when inhaled and 21 seconds intravenously. The high is fleeting, lasting less than 10 minutes. Craving and desire are generated immediately after the high. The initial high is never repeated, and the drug is so addictive that one or two uses can create dependence.

In the early 1970s, these characteristics made cocaine so desirable that its use became epidemic in the United States. By the mid 1980s, cocaine use had started to decline; however, with the introduction of an inexpensive form of cocaine, known as crack, usage has again achieved epidemic proportions. The use of cocaine by physician addicts has followed these national trends.

Not only is cocaine addiction widespread among addicted physicians, but treatment has produced limited results. At a recent national meeting of State Physician Health Program Directors, representing 21 states, reportedly only three physicians addicted to inhaled and intravenous cocaine were in recovery (drug free)

■ the wounded healer

longer than 12 months. The short half-life of cocaine and its free distribution characteristics make its detection in body fluids difficult; therefore, monitoring a cocaine-addicted physician's recovery is hazardous and complicated.

Experience with treating fentanyl-addicted physicians has not been as dismal as that of cocaine users. Still, the relapse rate with fentanyl is so great that most fentanyl-addicted anesthesiologists are required to take Trexan, under observation, as a stipulation to the continued practice of anesthesiology. Random drug screens also are obtained to detect the presence of Trexan and fentanyl. Effective doses of fentanyl produce minute amounts excreted in the urine, making detection difficult and expensive. Special handling is required for urine samples, and few laboratories are capable of performing fentanyl urine determinations.

Data concerning the treatment

outcomes of fentanyl-addicted anesthesiologists have been reviewed and correlated to relapse risk. The results justify recommending to first- or second-year anesthesiology residents that they pursue some other specialty with less exposure to mind-altering drugs. Stages with criteria have been established as guidelines to recommend when or if a third-year anesthesiology resident or anesthesiologist should return to practice. Three stages are identified, resulting in one of the following recommendations being made after completion of the initial treatment: 1) immediate return; 2) two-year leave of absence; and 3) change of specialty before re-entering active medical practice.

In summary, fentanyl and fentanyl derivatives have become drugs-of-choice for addicted anesthesiologists and other health care providers, despite limited use under restrictive control and su-

pervision. Similarities to cocaine with comparable "erotic and ecstatic highs" have given fentanyl a designer status among drug-users. Indications for legitimate medical use of fentanyl are increasing, resulting in wider dissemination of the drug into less restrictive environments, including direct prescriptions to outpatients.

Fentanyl and fentanyl derivatives abuse and dependency could reach epidemic proportions in the 1990s. Preventive measures, including strict adherence to narcotic control and personnel supervision, coupled with intensive medical staff education programs, should be considered to minimize the potential disastrous consequences to physicians and other health care providers. ▢

The author is medical consultant to the ISMA Physician Assistance Program.

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■ auxiliary report

Sue Schneider
ISMA-Auxiliary Public Relations
Chairman

The Indiana State Medical Association Auxiliary (ISMA-A) is planning many projects this year, including recruiting new members and renewing the commitment of existing members.

This summer, auxiliaries across the state will be invited to join or renew their memberships. Please consider joining the ISMA-A. Only by working together can we truly make a difference.

The ISMA-A began in 1924, when Frank W. Cregor, M.D., an Indianapolis physician and ISMA president, read about the AMA's auxiliary, which was approved by the AMA May 24, 1922. He read that an auxiliary meeting was to be held during the AMA convention in Chicago and suggested that his wife attend. Mrs. Cregor attended the meeting and was warmly welcomed. She also attended the 1925 AMA Auxiliary meeting in Atlantic City and was Indiana's only representative.

In the fall of 1925, the ISMA House of Delegates approved Dr. Cregor's report, recommending the formation of an ISMA auxiliary.

A state auxiliary cannot exist until there is at least one constituent auxiliary, so the Auxiliary to the Indianapolis Medical Society was formed Oct. 22, 1926, in the Nurse's Auditorium at the Indianapolis City Hospital (now Wishard Hospital). Mrs. Charles

F. Voyles was elected the first medical auxiliary president in Indiana.

On Sept. 8, 1927, other doctor's spouses from five or six counties joined the Indianapolis Medical Auxiliary at the Women's Department Club to organize the state medical auxiliary. Mrs. Frank Cregor was elected the first state president.

Madison County joined Oct. 18, 1927; Vigo County joined Nov. 22, 1927; Vanderburgh County joined in October or November 1927; Carroll County joined in April 1928; and Delaware County joined in May 1928.

Today, the ISMA-A is composed of 25 component county auxiliaries. It is a portion of a federated structure of county, state and national organizations that make up the AMA Auxiliary. Its members are spouses, widows or widowers of physicians who use their talents and abilities to help people achieve and maintain optimum healthy living.

The ISMA-A and the AMA Auxiliary have one purpose: to serve the people of this nation by ensuring quality health and health care for all through a federation of concerned, active physicians' spouses.

The objectives of the ISMA-A are educational and charitable. Specifically, they are to: assist the ISMA in its program for the advancement of medicine and public health; participate in any endeavor or request of the ISMA; coordinate and advise concerning the activities that meet health

needs; and support health-related charitable endeavors.

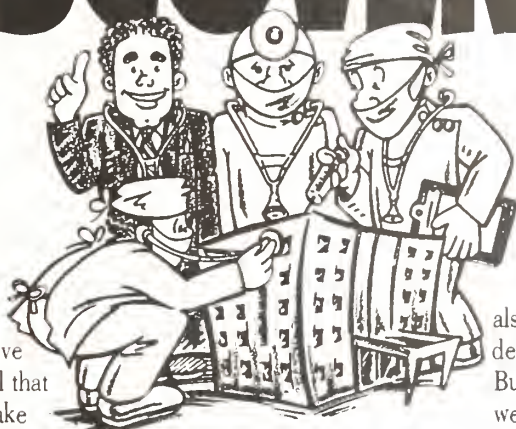
Benefits of ISMA-A membership include: associating with one of the most constructively involved health organizations in Indiana; knowing and working with other physician spouses; having a voice in local and state affairs of the auxiliary; using the state board and committee members as a resource for speakers and information; receiving *The Pulse* newsletter; participating in leadership training and education seminars; improving health care and medical practice by influencing legislation; providing financial assistance to medical students, interns and residents; and supporting important scientific and medical research.

For ISMA-A membership information, contact Rosanna Iler, ISMA, 322 Canal Walk, Indianapolis, IN 46202-3252, (317) 261-2060 or 1-800-969-7545.

Important dates

Sept. 25-26	Executive Committee meeting/ Open board meeting.
Oct. 6-8	Leadership Confluence I for county presidents-elect in Chicago.
Oct. 17	Fun & Farsighted Fundraising, a seminar for AMA-ERF chairmen at the ISMA.
Oct. 17	Long-Range Planning Committee meeting. □

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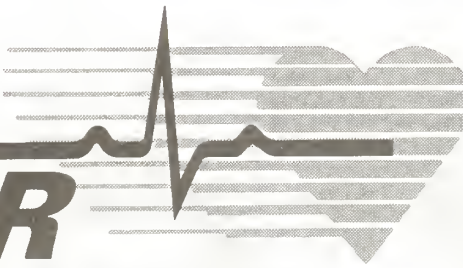
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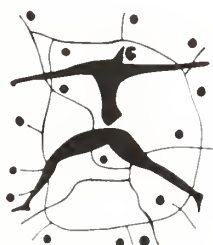
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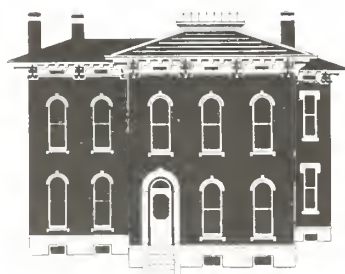
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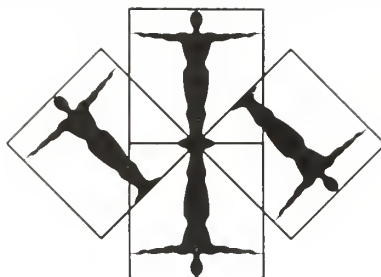
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■ obituaries

Robert L. Costin, M.D.

Dr. Costin, 59, an Indianapolis pathologist, died June 2.

He was a 1956 graduate of the Indiana University School of Medicine and served in the U.S. Air Force.

Dr. Costin was director of laboratories for St. Francis Hospital in Beech Grove, where he had served as director of the School of Medical Technology, secretary-treasurer and vice president of the medical staff and a member of the medical board executive committee. He was a director and partner of the medical laboratory of Drs. Thornton, Haymond, Costin, Buehl, Bolinger, Warner, McGovern, McClure, Hooker and Winkler.

A consulting pathologist for several hospitals, Dr. Costin was a fellow of the College of American Pathologists and had served as president and secretary-treasurer of the Indiana Association of Pathologists and president and secretary-treasurer of the American Pathology Foundation.

Robert W. Currie, M.D.

Dr. Currie, 82, a retired radiologist, died May 22 in Bradenton, Fla.

He was a 1935 graduate of the Indiana University School of Medicine.

Dr. Currie was a member of the Fort Wayne-Allen County Medical Society and an ISMA senior member.

Walter E. Deacon, M.D.

Dr. Deacon, 77, a retired Indianapolis medical official, died June 10.

He was a 1941 graduate of the Tufts University School of Medicine and an Army Air Forces veteran of World War II.

Dr. Deacon had served as chief medical officer of Indiana Rehabilitation Services, associate medical director of Fairbanks Hospital and medical director of services for crippled children for the Indiana Department of Public Welfare. He worked for the U.S. Public Health Service's Indiana Division and was chief of the Florida Bureau of Health Facilities and Services.

Dr. Deacon was an adviser to the Governor's Advisory Council for Developmental Disabilities in Children, Indiana Mental Retardation Planning Commission, the Indiana Task Force for the Handicapped and the End Stage Renal Disease Advisory Committee.

David J. Dukes, M.D.

Dr. Dukes, 63, a Corydon family practice physician, died June 15 at his home.

He was a 1952 graduate of the University of Louisville School of Medicine and a Navy veteran of World War II.

Dr. Dukes had practiced in Corydon since 1956 and was a member of the medical staff at Harrison County Hospital, the hospital's board of directors and the Harrison County Health Board.

Roy V. Pearce, M.D.

Dr. Pearce, 79, a retired Terre Haute family practice physician, died June 3 at his home.

He was a 1941 graduate of the Indiana University School of Medicine and a Navy veteran of World War II.

Dr. Pearce was a member of the Academy of Family Physicians and the Aesculapian Society. He had been a medical officer for Eli Lilly & Co.

Morton F. Wolfe Jr., M.D.

Dr. Wolfe, 57, a New Albany family practice physician, died May 21 at Norton Hospital.

He was a 1959 graduate of the University of Louisville School of Medicine.

Dr. Wolfe was affiliated with the Physicians Group Inc. and had been athletic team physician for New Albany High School 25 years. ■

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- Unlimited Maximum Benefits

MEDICAL PLAN D

- Economical Comprehensive Major Medical protection
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- Stop-Loss Limit \$5,000 per person, \$10,000 per family
- Unlimited Maximum Benefits

MEDICAL PLAN E

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Indiana State Medical Association
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■ news briefs

Kokomo Rehabilitation Hospital opens this month

The new 60-bed Kokomo Rehabilitation Hospital will begin accepting patients this month.

Located at 829 N. Dixon Road, the hospital will serve patients affected by traumatic brain injury, orthopaedic disorders, spinal cord injury, neurological disorders, amputation, back and neck injuries, stroke, chronic pain, arthritis, carpal tunnel syndrome and other cumulative trauma disorders and other multiple trauma. Primary counties served will be Howard, Carroll, Cass, Clinton, Grant, Miami, Tipton and Wabash.

Dietitians available to help kidney patients

The Indiana Council on Renal Nutrition has available a network of registered dietitians throughout the state who can provide early intervention dietary instruction to patients with kidney disease.

Call the National Kidney Foundation of Indiana at 1-800-382-9971 to obtain the name of a qualified renal dietitian.

NIH offers report on surgery for severe obesity

A consensus development statement on gastrointestinal surgery for severe obesity is available from the National Institutes of Health Office of Medical Applications of Research. The report was prepared by a panel of experts who considered scientific evidence presented at a Consensus Development Conference at NIH.

Free, single copies of the statement are available from William H. Hall, Director of Communications, Office of Medical Applications of Research, National Institutes of Health, Building 1, Room

259, Bethesda, MD 20892, (301) 496-1143.

Nurses influence opinions on emergency rooms

Patients are more likely to recommend emergency rooms when nurses show personal concern for the patient and keep patients informed about procedures and delays.

These findings lead the list of factors most closely correlated with the likelihood of recommending a hospital's emergency room, according to a recent survey by Press, Ganey Associates of South Bend.

The data showed that the empathy and communication skills of the nurses – and not their technical skills – most affected the patients' willingness to recommend the emergency room.

NIH conference to focus on late-life depression

"Diagnosis and Treatment of Depression in Late Life" is the subject of a Consensus Development Conference to be held Nov. 4 to 6 at the National Institutes of Health in Bethesda, Md.

For more information, contact Conference Registrar, Prospect Associates, 1801 Rockville Pike, Suite 500, Rockville, MD 20852, (301) 468-6338.

ACPE establishes awards

The American College of Physician Executives (ACPE) has announced a national awards program to recognize individual innovations in health care.

The Merck Sharp and Dohme Award will recognize advances in health care quality. It will be awarded for the method, technique, procedure or program that

has advanced or improved medical, nursing, ancillary or patient satisfaction services.

The Travelers Award will be given for the method, technique, procedure or program that has advanced or improved the control, containment or effectiveness of health care cost management.

The entry deadline is Sept. 3. To obtain entry forms and instructions, call 1-800-562-8088.

Physicians surveyed on end-of-life dilemmas

Nearly one in 10 U.S. primary care physicians has "deliberately taken clinical actions that would directly cause the death of a patient," according to a survey by *Physicians' Management*.

The survey also found that almost 30% of survey respondents said there are circumstances in which a physician would be justified in causing a patient's death. More than 90% said they have issued "do not resuscitate" orders. More than 29% said they would not remove a ventilator from a comatose patient who had directed such an action; most feared legal problems stemming from the action.

Museum appoints director

Oren Cooley has been named director of the Indiana Medical History Museum in Indianapolis. He replaces Kathy McDonnell, who has accepted a position as assistant director of marketing and communications for the Indiana University Center on Philanthropy.

A 1985 graduate of Indiana University, Cooley previously was the public relations assistant at Westview Hospital in Indianapolis. He began his new job July 22. ▴

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If you are a board-certified physician or a candidate for board certification in one of the following specialties, you may qualify for a bonus of up to \$30,000 in the Army Reserve.

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A test program is being conducted which offers a bonus to eligible physicians who reside in certain geographic areas (Pennsylvania, West Virginia, Ohio, Michigan, Illinois, Indiana, Wisconsin, Minnesota and Iowa). You would receive a \$10,000 bonus for each year you serve as an Army Reserve physician—for a maximum of three years.

You may serve near your home, at times convenient for you, or at Army medical facilities in the United States and abroad. There are also opportunities to attend conferences and participate in special training programs, such as the Advanced Trauma Life Support Course.

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people

Dr. Robert L. Forste of Columbus has been elected president of the Indiana Orthopaedic Society. Other officers are **Dr. Marlin L. Troyer**, South Bend, president-elect; **Dr. Daniel J. Herman**, Vincennes, immediate past president; **Dr. Clyde B. Kernek**, Indianapolis, secretary-treasurer; **Dr. Claude C. Reeck**, Indianapolis, board member-at-large; **Dr. Edward Wagoner**, Lafayette, membership committee chairman; and **Dr. James B. Buchholz**, Fort Wayne, board of councillors representative.

Dr. David M. Duncan of Rushville was named medical director of Rush County Emergency Services Management Committee, a position that provides for medical directorship of all Rushville and Rush County medical, rescue, fire, police and Civil Defense emergency services. Dr. Duncan, medical director of the department of emergency services at Rush Memorial Hospital, also was inducted in the 1991 "Who's Who of Rising Young Americans" and "Who's Who in Health and Medical Sciences."

Dr. Stephen W. Perkins of Indianapolis participated in two seminars at a St. Louis meeting sponsored by the American Academy of Facial Plastic and Reconstructive Surgery. He discussed upper and lower lid blepharoplasty during a seminar on "Basics of Plastic Surgery of the Aging Face" and moderated a panel on operating room settings and led a discussion on office operating room equipment during a seminar on "Advanced Plastic Surgery of the Aging Face."

Dr. Thomas J. Fischer of The Indiana Hand Center in Indianapolis was elected an active member of the American Society for Surgery of the Hand.

Physician Recognition Award recipients

The following ISMA physicians are recent recipients of the AMA's Physician Recognition Award. This award is official documentation of Continuing Medical Education hours earned and is acceptable proof in most states requiring CME in re-registration that the mandatory hours of CME have been accomplished.

Acton, Charles M., Terre Haute
Alexander, Panos C., Kokomo
Allman, Rex A., Winamac
Anderson, James T., Greenfield
Andrew, Jerald L., Fort Wayne
Ayoub, Adel H., Valparaiso
Beeler, Richard T., Carmel
Black, Kenneth A., Portage
Carnes, John D., Huntington
Chu, Ruth Y., Danville
Clark, Jack P., Syracuse
Clements, Robert E., Greenfield
Colalillo, Alessandro, Logansport
Cronen, Paul W., Madison
Dillon, Gary P., Fort Wayne
Douglas, Scott K., Indianapolis
Echsner, Herman J., Columbus
Ellis, Robert F., Merrillville
Felger, Thomas A., Fort Wayne
Foley, Phillip D., Middletown
Fretz, Richard C., Kokomo
Greenlee, James R., Elkhart
Harper, Michael E., Tipton
Hughes, William B., Waterloo

Johnson, Harold V., Evansville
Kamen, Jack M., Indianapolis
King, Charles R., Anderson
Kinne, Mark T., Munster
Koontz, James A., Vincennes
Lyons, Charles R., Wabash
Martin, Joanne K., Brookville
Murray, Richard P., Evansville
O'Brien, Mark S., Syracuse
O'Conner, Thomas M., Greenfield
Park, Jung I., Munster
Patel, Kant, Connersville
Robbins, Gordon T., Zionsville
Rouhana, Rudolph, Indianapolis
Sabens, James A., Indianapolis
Sidel, Alan W., Fort Wayne
Somes, Claudia J., Indianapolis
Speckman, Glenn H., Indianapolis
Waiss, Elaine H., Munster
Wanee, Neil R., Fishers
Wind, Joseph L., South Bend
Wolf, Harry C., Indianapolis
Yoder, Steven M., Goshen
Zunich, Janice, Gary

Dr. Randolph W. Lievertz of Indianapolis presented a program on hormone replacement therapy in menopause for the Harrison County Medical Society in Charleston, W.Va. During a May program at the Indianapolis Motor Speedway, he spoke to a group of central Indiana physicians on "The Fast Track to Hormone Replacement Therapy."

Dr. Linda Huck relocated her internal medicine practice to 6319 S. East St., Indianapolis.

Dr. Bill Gitlin of Bluffton was named an honorary medical staff member at Wells Community

Hospital in Bluffton; he was a family practitioner in Bluffton for 55 years until he retired from active practice in July 1990.

Dr. R.J. Morrical, a Logansport family practitioner, received the Silver Beaver award from the Sagamore Council of the Boy Scouts; he is a 68-year veteran of Scouting.

Dr. Harry M. Sanders, a Carmel emergency medicine specialist, was elected secretary of the Little Red Door/Marion County Cancer Society board of directors.

Dr. Thomas M. Walker has retired after 30 years as a

Brownsburg family practitioner.

Dr. David A. Campbell of South Bend was named a fellow of the American Academy of Facial Plastic and Reconstructive Surgery.

Dr. John R. Poncher, a Valparaiso pediatrician, was re-elected to the board of Indiana Federal Corp.

Dr. John S. Stearley, a Gosport family practitioner, received the Commander's Award from the Gosport Veterans of Foreign Wars Post; the award is given annually to an outstanding member of the community.

Dr. J.T. Morrison has retired after serving as a family practice physician in Greensburg since 1934.

Dr. Don M. Henry, a Munster obstetrician/gynecologist, was a contestant on the "Jeopardy" television game show; although he led early in the game, he lost in the final round of the program.

Dr. Victor G. Viray has retired after 30 years as a Crawfordsville general surgeon.

Dr. Richard H. Shafer has retired after 43 years as an Alexandria family practitioner.

Dr. Ralph H. Young, a retired Goshen physician, was named Rotarian of the Year by the

Goshen Rotary Club. □

New ISMA members

Elaine M. Arata, M.D., Howe, internal medicine.

Robert C. Beeson, M.D., Indianapolis, family practice.

Robert S. Bradfield, M.D., Evansville, radiation oncology.

William H. Cooper, M.D., Indianapolis, neurology.

Karen O. Ehrman, M.D., Indianapolis, radiology.

John O. Grimm, M.D., Evansville, orthopaedic surgery.

Paul J. Gruszka, M.D., Valparaiso, orthopaedic surgery.

Gene R. Lariviere, M.D., Evansville, general surgery.

David M. Loesch, M.D., Indianapolis, internal medicine.

Charles C. MacDonald II, M.D., Evansville, pediatrics.

Joseph A. Maggioncalda, M.D., Evansville, anesthesiology.

David L. Mitchell-Flynn, M.D., Lafayette, family practice.

Luke A. Pluto, M.D., Indianapolis, pulmonary diseases.

Emily F. Pollard, M.D., Indianapolis, plastic surgery.

Kathleen Rintz, M.D., Valparaiso, orthopaedic surgery.

James F. Rold, M.D., Evansville, radiology.

Daniel B. Sullivan, D.O.,

Newburgh, anesthesiology.

Residents

James W. Akin Jr., M.D., Indianapolis, reproductive endocrinology.

Maryann L. Bridge, M.D., Indianapolis, anatomic/clinical pathology.

Gregory M. French, M.D., Indianapolis, internal medicine.

Harry C. Genovely, M.D., Indianapolis, cardiovascular diseases.

Ben H. Harmon, M.D., Indianapolis, diagnostic radiology.

David K. Hilton, M.D., Evansville, psychiatry.

Joseph A. La Rosa, M.D., Indianapolis, obstetrics and gynecology.

Blair S. MacPhail, M.D., Indianapolis, cardiovascular diseases.

Carla G. Mishler, M.D., Nappanee, family practice.

Binh Q. Nguyen, M.D., Indianapolis, ophthalmology.

James C. Ransbottom, M.D., Muncie, internal medicine.

David B. Thomas, M.D., Indianapolis, gastroenterology.

Boguslaw Uchman, M.D., Muncie, anatomic/clinical pathology. □

isma leadership

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 Peter Winters, Indianapolis
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- 1 — Bruce Romick, Evansville (1992)
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 - 3 — Gordon L. Gutmann, Jeffersonville (1992)
 - 4 — William L. Cooper, Columbus (1992)
 - 5 — Fred L. Haggerty, Greencastle (1992)
 - 6 — Clarence G. Clarkson, Richmond (1992)
 - 7 — Donna J. Meade, Indianapolis (1992)
 - 8 — John M. Records, Franklin (1993)
 - 9 — Peter L. Winters, Indianapolis (1993)
 - 10 — John A. Osborne, Muncie (1993)
 - 11 — Adrian Lammie, Noblesville (1993)
 - 12 — Nicholas L. Polite, Hammond (1992)
 - 13 — Jack W. Higgins, Kokomo (1993)
 - 14 — John R. Thomas, Fort Wayne (1993)
 - 15 — Alfred C. Cox, South Bend (1992)
 - 16 — Rick Robertson, Indianapolis (1991)
 - 17 — Andy Stovall, Indianapolis (1991)
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- 1 — Bernice Maynard, Evansville (1991)
- 2 — James Beck, Washington (1992)
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- 5 — Ronald M. Kohr, Terre Haute (1991)
- 6 — Rex A. Haas, Greenfield (1992)
- 7 — Ronald G. Blankenbaker, Indianapolis (1991)
- 8 — Bernard Emkes, Indianapolis (1992)
- 9 — Charles O. McCormick III, Greenwood (1993)
- 10 — Susan Pyle, Union City (1991)
- 11 — Stephen D. Tharp, Frankfort (1992)
- 12 — Frank M. Sturdevant, Valparaiso (1991)
- 13 — Laurence K. Musselman, Marion (1992)
- 14 — Charles M. Frankhouser, Fort Wayne (1992)
- 15 — Richard J. Houck, Michigan City (1991)
- 16 — Mike Titwiller, Indianapolis (1991)
- 17 — Ruchir Sehra, Indianapolis (1991)

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Marvin F. Priddy, Fort Wayne (1991)
 Peter R. Petrich, Attica (1991)
 Herbert Khalout, Marion (1991)
 John A. Knote, Lafayette (1992)
 Alvin J. Haley, Carmel (1992)
 George I. Lukemeyer, Indianapolis (1992)

AMA ALTERNATE DELEGATES (Terms end Dec. 31)

John D. MacDougall, Beech Grove (1991)
 William C. Van Ness II, Summitville (1991)
 Richard L. Reed, Yorktown (1991)
 Shirley Thompson Khalout, Marion (1992)
 Max N. Hoffman, Covington (1992)
 Edward L. Langston, Indianapolis (1992)

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- 1 — Pres. Richard A. Tibbals, Evansville
 Secy. Rex H. Ragsdale, Evansville
 Annual Meeting: May 21, 1992
- 2 — Pres. Paul Daluga, Linton
 Secy. Frederick R. Ridge, Jr., Linton
 Annual Meeting: May 14, 1992
- 3 — Pres. Stephen R. Davens, Jeffersonville
 Secy. Olegario J. Ignacio, Jeffersonville
 Annual Meeting: May 20, 1992
- 4 — Pres. Robert L. Forste, Jr., Columbus
 Secy. Jeffery C. Hagedorn, Columbus
 Annual Meeting: May 6, 1992
- 5 — Pres. James R. Rudolph, Greencastle
 Secy. Peggy Sankey-Swain, Rockville
 Annual Meeting: May 28, 1992
- 6 — Pres. Dennis L. Roberts, Shelbyville
 Secy. William H. Toedebusch, Richmond
 Annual Meeting: May 13, 1992

- 7 — Pres. Bernard J. Emkes, Indianapolis
 Secy. H. Marshall Trusler, Greenfield
 Annual Meeting: To be announced
- 8 — Pres.
 Secy.
 Annual Meeting: June 3, 1992
- 9 — Pres. Robert E. Darnaby, Rensselaer
 Secy. Stephen D. Tharp, Frankfort
 Annual Meeting: June 10, 1992
- 10 — Pres. Filemon P. Lopez, Dyer
 Secy. Barron M. Palmer, Hammond
 Annual Meeting: June 17, 1992
- 11 — Pres. Alan R. Crebo, Kokomo
 Secy. Frederick C. Poehler, La Fontaine
 Annual Meeting: Sept. 18, 1991
- 12 — Pres. Mark S. Souder, Auburn
 Secy. John A. Egli, Topoka
 Annual Meeting: Sept. 19, 1991
- 13 — Pres. Mark A. Ballard, LaPorte
 Secy. John W. Schurz, South Bend
 Annual Meeting: Sept. 11, 1991

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FAMILY PRACTICE, OB-GYN AND INTERNAL MEDICINE positions are available in a variety of settings from central Ohio, through Michigan, Indiana, Wisconsin and Illinois to the rolling plains of Kansas. Single or multi-specialty groups or solo with call coverage. Attractive guarantees and benefits. For more information, please call our toll-free number, 1-800-243-4353, or send your CV to STRELCHECK & ASSOCIATES, INC., 10624 N. Port Washington Road, Mequon, WI 53092.

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PEOPLE'S HEALTH CENTER, which is a community health center, is seeking candidates for the position of executive director. Qualified applicants will possess an MBA/MPH or MHA and a minimum of two years of experience. Resumes to Executive Director, Search Committee, People's Health Center, 2340 E. 10th St., Indianapolis, IN 46201.

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MULTIPLE AND VARIED physician practice opportunities currently exist in the state of Indiana. Call Patti Quiring at (317) 633-6444 at work or (317) 823-4746 at home. Patti is a physician recruiter for Technical Resource Group, which

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Mark Your Calendars!

Who: ISMA members

What: Annual convention

When: Nov. 8-10, 1991

Where: Westin Hotel in
downtown
Indianapolis

For more information: Call
Denise Le Doux at the ISMA,
(317) 261-2060 or 1-800-969-
7545.

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Vol. 84, No. 9

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3/19	Ft. Wayne	10/1	Merrillville
3/20	Marion	10/2	South Bend
3/21	Indianapolis	10/3	Ft. Wayne
4/2	Evansville	10/8	Carmel
4/3	Clarksville	10/10	Clarksville
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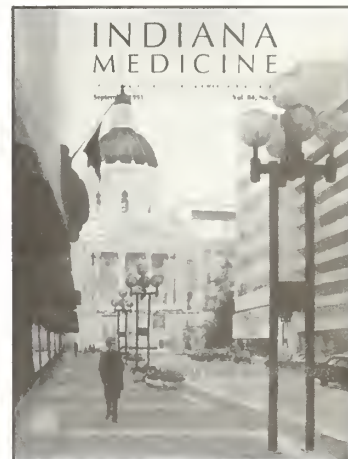
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PHYSICIAN OPPORTUNITY

A Natural Selection

St. Luke's Healthcare Association – a progressive, multifacility healthcare system located in Saginaw, Michigan – currently has private practice and hospital career opportunities for physicians in selected areas of specialization.

The Association provides a complete range of specialty care units, including adult and pediatric intensive care, coronary care and emergency care. We recently opened The Family Birth Center™ – a progressive, new, single-room obstetrics unit. And we cooperate in an active residency program

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St. Luke's Healthcare Association is a diverse and growing organization, anxious to meet with physicians interested in pursuing a career marked by a strong administration/physician working relationship and a team approach to patient care.

If you're such a physician, St. Luke's Healthcare Association and Saginaw, Michigan, are natural selections. Contact us today for additional information.



Call or write Jan Gould,
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All issues since 1967 are available on microfilm from University Microfilms International, 300 N. Zeeb Road, Ann Arbor, MI 48106. Indexed in *Index Medicus* and *Hospital Literature Index*.

Advertising rates and data available upon request. INDIANA MEDICINE reserves the right to accept or reject advertising.

Patients Compensation Fund surcharge to increase Oct. 1

The Patients Compensation Fund surcharge will be increased to 150% Oct. 1. The increase, approved April 22, was originally scheduled to take effect July 1, but was delayed.

ISMA members can pay dues with VISA or MasterCard

A new payment option has been added to the redesigned 1992 ISMA membership dues statement, to be mailed in October. Physicians can now use VISA or MasterCard to pay their dues.

Those wishing to charge their dues should complete the information required, including the charge card account number and expiration date, sign the statement and send it to the ISMA. An acknowledgement of payment will be sent with the membership card.

If you have questions about the dues statement, call your ISMA field representative or the ISMA Membership Department, (317) 261-2060 or 1-800-969-7545.

ISMA convention to feature risk management seminar

Risk management will be discussed during a seminar at the annual ISMA convention Nov. 8 to 10 at the Westin Hotel in downtown Indianapolis.

Physicians Insurance Company of Indiana will sponsor the risk management seminar, which will carry two hours of Category 1 CME credit. During a program given by the ISMA Medicare reimbursement coordinator, physicians will hear the latest information about the resource-based relative value scale (RBRVS) and learn more about the ABCs (admitting, billing and collections) of practice management. Also on the agenda are House of Delegates sessions, reference committee meetings, section meeting, a two-day exposition and the President's Night Reception and Dinner. Three county medical societies will sponsor afterglows to honor their candidates.

The convention pocket guide will be mailed this month. For more information, call Denise Le Doux, (317) 261-2060 or 1-800-969-7545.

ISMA continues seminars on addictions throughout state

The ISMA Commission on Physician Assistance is continuing to present its seminars on addictions at various locations in Indiana. Remaining seminar dates and locations are: Oct. 23, Memorial Hospital, South Bend; Oct. 30, Floyd Memorial Hospital, New Albany; Nov. 6, Methodist North Hospital, Gary; and Nov. 20, ISMA headquarters, Indianapolis.

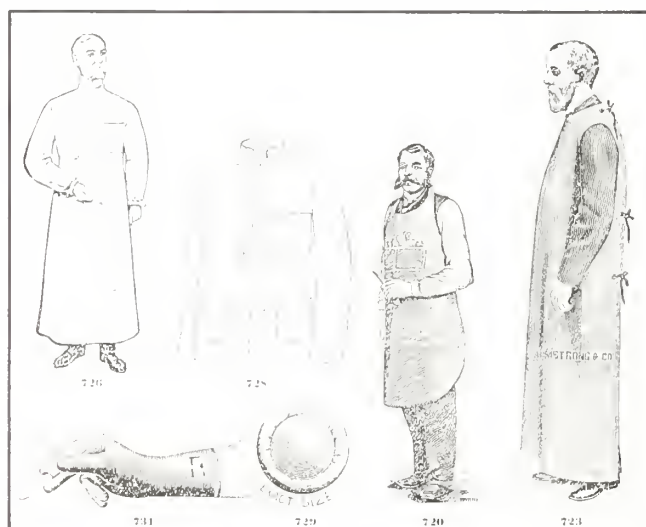
There is no charge for the seminars, which are open to physicians, related health care professionals and family members. Category 1 CME credit will be given by the American Academy of Family Physicians. For details, call Candace Backer, (317) 261-2060 or 1-800-969-7545. □

■ from the museum

During the 19th century, the operating room, along with surgical equipment and accessories, changed dramatically. The operating room of the early 19th century was the patient's home. The kitchen table often doubled as the operating table, and friends and relatives served as the doctor's assistants. Doctors operated in their street clothes; instruments were not sterilized and often were not even cleaned. Many patients died of infection.

In the 1860s, Louis Pasteur discovered that living organisms caused putrefaction, or the decay of organic matter. Joseph Lister, who became acquainted with Pasteur's work in 1865, suggested that these same micro-organisms, airborne germs, could cause infection in open wounds. He recommended that wound dressings be soaked in carbolic acid and later urged surgeons to spray the operating room with carbolic acid. Many doctors did not accept Lister's antiseptic operating methods. Even those who did continued operating in street clothes.

General surgical requirements and surgical garb.
Taken from the Wm. Armstrong & Co. catalog, Indianapolis, Ind., (1901).



Thus, early operating rooms were far from aseptic.

With the development of bacteriology in the 1870s and 1880s, more doctors became aware of the need for an aseptic operating environment. Many abandoned the use of carbolic acid and instead began boiling and heating instruments, sutures, towels and sponges and washing their hands with soap and water.

Special surgical garb appeared in the 1870s with the introduction of rubber aprons. These aprons could be easily cleaned with antiseptic fluids. White coats appeared in the 1880s but were worn by assistants and spectators. German surgeons began wearing loose-fitting surgical gowns over their street clothes in the early 1880s, and by the end of the century, American surgeons had adopted this procedure. Rubber gloves were first worn in 1893 by New York surgeon William Halsted, and by 1900, their use was commonplace. By 1910, caps had become an important part of surgical apparel. Face masks were introduced in the same pe-

riod, but resistance to their use was strong.

Changes in instrumentation, however, were slow. Even after antiseptic surgical techniques were introduced by Lister in 1867, instrument manufacturers continued to produce instruments that could not be sterilized. Handles made of ebony, bone or ivory were damaged by the use of carbolic acid. Instrument manufacturers, therefore, replaced the handles with hard rubber (vulcanite) and ebonite. Yet, these materials could not withstand sterilization. The instruments were washed, dried and placed into velvet or silk-lined cases.

With the advent of aseptic surgery, instrument manufacturers began producing instruments that could withstand the high temperatures required for sterilization. The new aseptic instruments were made of alloy steel and lacked ornamentation. The handles often separated from the blades, and cases were lined in leather rather than velvet or silk.

The Indiana Medical History Museum's collection of surgical equipment reflects the advent of aseptic surgery. Its collection contains everything from the septic instruments with ivory and bone handles to antiseptic and aseptic operating kits, including ones distributed locally by the William Armstrong Co. in Indianapolis. It also has carbolized sponges and sutures and antiseptic anesthesia equipment, including an Ellis antiseptic ether inhaler. □

The Indiana Medical History Museum is located at 3045 W. Vermont St., adjacent to Central State Hospital, in Indianapolis. Call (317) 635-7329 for more information.



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■ what's new

American Hospital Publishing Inc., an American Hospital Association company, has published a new book titled the *ICD-9-CM Coding Handbook*. The handbook is published in two versions, one that includes answers for the coding exercises provided in the handbook and one that does not. The revised 1991 edition offers explanations of the basic principles behind the *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)*. To order, write the American Hospital Association Services Inc., P.O. Box 92683, Chicago, IL 60675-2683.

Wampole Laboratories has developed the STAT-CRIT® instrument system to electronically measure hematocrit and calculate hemoglobin levels using a disposable micro-blood sample carrier and one drop of whole blood. The STAT-CRIT® can be used in physician offices, emergency and trauma centers, dialysis centers and free-standing surgicenters. For a free trial offer, call Wampole at 1-800-872-6538.

Boehringer Mannheim has introduced Chemstrip Micral Test Strips for screening of microalbuminuria. The strip is dipped in urine for five seconds, and after five minutes, the results can be read using the color chart on the side of the vial. The strips are available in vials of 30 strips. For more information, call the

Boehringer Mannheim Diabetes Medical Services 24-hour hotline, 1-800-858-8072.

The United States Pharmacopeial Convention has published the 1992 edition of *USAN and the USP Dictionary of Drug Names*. This version contains more than 26,400 entries with more than 6,000 graphic formulas. A list of orphan drug and biological designations includes products in the investigational stage that have not yet been approved or licensed for marketing by the U.S. Food and Drug Administration. The dictionary is \$90 per copy. To order, call 1-800-227-8772.

CIBA-GEIGY Pharmaceuticals has received permission from the U.S. Food and Drug Administration to market Lotension® to treat hypertension. The drug, a non-sulphydryl angiotensin-converting enzyme inhibitor, lowers blood pressure and exhibits safety benefits for hypertensive patients older than 55 years of age. Lotensin can be administered alone or in combination with thiazide diuretics.

News of what is new in the medical supply industry is compiled from news releases. Each item published does not necessarily constitute an endorsement of a product or recommendation for its use by INDIANA MEDICINE or the Indiana State Medical Association.

The American Association of Blood Banks has published the *1991 Directory of Community Blood Centers*, containing more than 125 blood centers in the United States. Each blood center is profiled, including key personnel, number of employees, special services offered, components produced, computer services, association memberships and financial information. The directory is \$35. To order, contact the American Association of Blood Banks, Sales Office, 1117 N. 19th St., Suite 600, Arlington, VA 22209, (703) 528-8200.

Amacom, a division of the American Management Association, has published *Affordable Employee Health Care: Options for a Model Benefits Plan*. The book contains descriptions of options for structuring a health care plan that will reduce costs while ensuring adequate care for employees. The book offers suggestions for making the best use of limited health care dollars to protect employers and employees. The 400-page book is \$69.95.

Lea & Febiger has published four new books, the *AOFAS Foot and Ankle Manual*, *Cardiac Emergency Care*, *Contemporary Conservative Care for Painful Spinal Disorders* and *Electrocardiographic Interpretation - A Self-Study Approach to Electrocardiography*. To order any of the books on a 30-day approval, call 1-800-638-0672. □



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Methodist Hospital

Methodist Hospital of Indiana will sponsor the following courses:

- Sept. 27-28** – Child Neurology Getaway, Hueston Woods State Park Lodge, Ohio.
- Oct. 3** – Brief Cognitive Therapy: Behavioral Care of the Future, Westin Hotel, Indianapolis.
- Oct. 11** – Diabetes Update, Omni Severin Hotel, Indianapolis.
- Oct. 21-22** – AmbuQual Users Conference, Days Inn at the Airport, Indianapolis.
- Nov. 1-2** – Advanced Cardiac Life Support Course, Methodist Hospital, Wile Hall, Indianapolis.
- Nov. 6** – Practical Topics in the Care of the Elderly: Lester Bibler Day, Methodist Hospital, Petticrew Auditorium, Indianapolis.
- Nov. 15-16** – Advanced Trauma Life Support Course, Methodist Hospital, Wile Hall, Indianapolis.

For more information, call Dixie Estridge, (317) 929-8215.

The Ear Institute

The Ear Institute of Indiana will sponsor Otology Update 1991 at the Community Hospital Professional Building in Indianapolis Oct. 30.

For details, call George Hicks, M.D., course director, (317) 842-4757 or 1-800-522-0734.

Indiana University

The Indiana University School of Medicine will sponsor these

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- Sept. 25** – 19th Annual Fall Symposium: Pediatric Surgery for the Pediatrician and Family Practitioner, University Place Conference Center and Hotel, Indianapolis.
- Sept. 27** – Gastroenterology Update and Gut Club Meeting, University Place Conference Center and Hotel, Indianapolis.
- Sept. 28** – Management of Hypercholesterolemia, University of Notre Dame, South Bend.
- Sept. 28** – American Diabetes Association, Sheraton Inn, Northeast, Indianapolis.
- Oct. 18-19** – Family Practice Update in Cardiology: Emphasis on Office Practice, Krannert Institute of Cardiology, Indianapolis.
- Oct. 25** – Second Annual Anxiety Update, University Place Conference Center and Hotel, Indianapolis.
- Nov. 8-9** – Wound Management For Health Care Providers, Radisson Hotel, Keystone at the Crossing, Indianapolis.
- Nov. 14-15** – Garceau Wray Lectures, Indiana University Medical Center, Indianapolis.

For more information, call Sheryl King, (317) 274-8353.

St. Mary's Medical Center

St. Mary's Medical Center in Evansville will sponsor these

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- Oct. 15-16** – Nursing Cardiac Refresher Program, Indianapolis Regional Heart Center at St. Francis Hospital, Indianapolis.
- Oct. 17** – Cardiology Grand Rounds, Updates in Cardiac Surgery, Catterhous, Martinsville.
- Oct. 19** – Risk Factor Identification and Management Conference, The Murat Shrine, Indianapolis.
- Nov. 12** – Cardiology Grand Rounds: Athletes and Heart Disease, Holiday Inn South, Indianapolis.
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Clozapine: A novel antipsychotic with a controversial introduction

Mark R. Ogle, M.D.
Marvin J. Miller, M.D.

Schizophrenia is a common illness afflicting at least 1 million Americans.¹ In 1989, schizophrenic inpatients occupied 869 beds in the Indiana hospital system.² The annual cost nationwide for providing mental health services for schizophrenic patients is estimated at \$20 billion;³ the cost of suffering for patients and their families is incalculable.

Schizophrenia treatment was revolutionized in the 1950s with the introduction of chlorpromazine and equivalent antipsychotic drugs. However, considerable problems remain. About 10% to 20% of schizophrenic patients do not respond to these medications,⁴ and 20% to 30% of the responders relapse within two years.⁵

These sobering facts explain the excitement in the mental health community in February 1990, when Sandoz Pharmaceuticals released clozapine, an "atypical" antipsychotic, for general distribution in the United States.⁶ In a large, well-designed double-blind trial, clozapine was superior to chlorpromazine in the "treatment-resistant" schizophrenic patient.¹

The enthusiasm engendered by clozapine's release was initially

Abstract

Last year's introduction of clozapine, an atypical antipsychotic, in the United States was the most significant advance in schizophrenia treatment since the advent of chlorpromazine in the 1950s. However, clozapine has a disturbingly high incidence of agranulocytosis. The drug manufacturer designed a complex and expensive mandatory blood monitoring system that was dismantled after public pressure earlier this year. There is hope that clozapine will become more widely available to schizophrenic patients.

tempered by concerns over its cost, roughly 20 times more than conventional antipsychotics.⁷ The price was due mainly to the unique Clozaril Patient Management System (CPMS), designed by Sandoz Pharmaceuticals to prevent deaths from agranulocytosis, clozapine's most serious side effect. The CPMS and clozapine controversy have significant implications for psychiatry and medicine as a whole. Public and professional reactions to the delivery system have resulted in changes to lower clozapine's price.

Pharmacology and biochemistry

Clozapine is not a new compound; it has been studied for nearly three decades,⁸ and clinical research has been conducted at Larue D. Carter Memorial Hospital in Indianapolis since 1974. It is a piperazine-substituted tricyclic

of the dibenzodiazepine class, chemically similar to loxapine, a classical antipsychotic.⁹ However, clozapine has various clinical and biochemical differences between it and the traditional antipsychotics (Table).

Despite decades of intensive research, the mechanisms of clozapine's antipsychotic efficacy remain unclear. Many researchers believe that dopamine D₂ receptor blockade is responsible, as with other antipsychotic agents. Others postulate that dopamine D₁ blockade is involved; normalization of dopaminergic transmission via serotonin and dopamine D₂ blockade is a third proposal.^{9,10}

Clozapine's advantages

Clozapine's advantages over older antipsychotics lie in two principal areas. Most importantly, it has superior efficacy in so-called treatment-resistant schizophrenia. No

Table *

Biochemical effects	Clozapine	Traditional antipsychotics
Dopamine blockade	both D ₁ and D ₂	chiefly D ₂ receptors
Blockade of alpha, serotonin, histamine and muscarinic receptors	uniformly strong	variable
Effect on prolactin secretion	little if any elevation	sustained & considerable elevation
ACTH & corticosteroid release	increased	no change
Dopaminergic & nigral GABA supersensitivity w/chronic administration (possible etiologies of tardive dyskinesia)	absent	present
Side effect profile		
Anticholinergic effects	relatively strong	variable
Hypersalivation	present	absent
Extrapyramidal side effects	0% - 20%, mild if present	up to 85%, often severe
Tardive dyskinesia	no confirmed cases	15% - 20% w/chronic use
Neuroleptic malignant syndrome	one case report w/concurrent lithium	variable but much higher than clozapine
Seizures	dose-related, up to 5% annually	less
Agranulocytosis	10-20 per thousand in U.S.	0.1 - 1.0 per thousand

* = References 11 through 17

previous antipsychotic has been superior to another for this illness.¹ In addition, clozapine's side effects generally are better tolerated by patients.

Numerous studies beginning in 1966 in Europe⁸ have demonstrated clozapine's clinical effectiveness in the treatment of schizophrenia. Multicenter double-blind European trials in the 1970s showed clozapine supe-

rior to chlorpromazine and haloperidol¹⁸ but were criticized for inadequate dosing of the comparison drugs. Three retrospective studies from Finland, Sweden and Denmark suggested 30% to 40% of treatment-resistant schizophrenic patients would respond to clozapine¹⁹ but suffer from the limitations inherent in a retrospective approach. Claghorn reported clozapine superior to chlorproma-

zine in a six-center double-blind study of 151 schizophrenic inpatients with either extrapyramidal side effects from other antipsychotics or tardive dyskinesia.²⁰

The definitive collaborative study of clozapine included 268 treatment-resistant schizophrenic patients.¹ They were randomized to receive either six weeks of chlorpromazine plus benztropine or six weeks of clozapine plus a

placebo. Based on predetermined criteria for improvement, 30% of the clozapine group versus only 4% of the control group improved. In a later study by Meltzer, only 45% of the eventual clozapine responders had been identified at the end of the six-week treatment.²¹ This suggests that long therapeutic trials of clozapine may be necessary and that up to two-thirds of heretofore treatment-resistant schizophrenics may respond to the drug.

Clozapine is not free from side effects. It is strongly anticholinergic, resulting in the expected sedation, tachycardia, hypotension and dizziness. Hypersalivation is a common side effect not seen with other antipsychotics and is paradoxical because one would not expect this reaction with an anticholinergic medication. Benign hyperthermia occurring shortly after the initiation of treatment also is common. All antipsychotics lower the seizure threshold, and clozapine shares this characteristic. Clozapine-induced seizures seem to be dose-related and do not require cessation of the drug. Anticonvulsants may be added if indicated.¹³

Despite these problems, many patients prefer clozapine because of its freedom from extrapyramidal side effects, including acute dystonia, akathisia (restlessness), pseudoparkinsonism and akinesia. These side effects are frequent in high-dose traditional antipsychotic treatment and a principal factor in reducing the compliance of schizophrenic patients. In contrast, two European studies and one American study found only 6% of clozapine-treated patients stopped treatment because of side effects.^{1,22,23} In addition, two decades of clinical experience with

clozapine have not produced one confirmed case of tardive dyskinesia, the often irreversible movement disorder affecting 15% to 20% of patients on long-term conventional antipsychotic regimens.¹⁴

Agranulocytosis

Clozapine's release in the United States was delayed because of concerns about the drug's propensity to cause agranulocytosis. All antipsychotics have been associated with this potentially fatal side effect. Incidence estimates vary from 0.1 to 1.0 cases per thousand.¹⁷ Clinical testing of clozapine from 1962 to 1971 resulted in four cases of agranulocytosis out of 2,900 patients exposed to the drug.¹⁷ These results were similar to those of previous antipsychotics, and clozapine was released for general European distribution in 1972.

In 1975, however, the "Finnish Epidemic" of agranulocytosis occurred. Sixteen patients on the drug developed agranulocytosis, and eight of these died of subsequent infections.²⁴ The Finnish rate of agranulocytosis was 7.1 per thousand, roughly 10 times higher than that reported with other antipsychotics.¹⁷ Investigations failed to find specific genetic or epidemiologic factors to account for this high incidence.²⁵ Following a Swiss report of increased agranulocytosis the following year, the drug was withdrawn from Europe.²⁶

In 1979, clozapine was reintroduced in Europe with strict mandates for close hematologic monitoring. In particular, physicians agreed to monitor white blood cell counts weekly for 18 weeks and monthly thereafter.²⁶ About 77% of the 185 reported cases of

clozapine-associated agranulocytosis have occurred within the first 18 weeks of treatment.²⁷ Since these guidelines were established, the number of cases of agranulocytosis, including fatal ones, have been comparable to other neuroleptics.²⁶ During the 1980s, two to four fatal cases of clozapine-associated agranulocytosis occurred worldwide annually, with all happening in the first 18 weeks of treatment.²⁷

Due to its superior efficacy, clozapine has been increasingly used abroad during the past decade, despite the concerns over agranulocytosis. In the Berlin Psychiatric Department in 1986, clozapine was prescribed to 29% of all schizophrenic patients and was the third most commonly used antipsychotic.²⁶ In Shanghai in 1985, clozapine was second only to chlorpromazine for use in schizophrenia.²⁸ Numerous long-term retrospective studies, some spanning more than a decade, are now available documenting clozapine's safety. A German study of consecutive schizophrenic patients treated from May 1979 to August 1988 found only one case of agranulocytosis (non-fatal) and one case of leukopenia among 1,100 patients treated with clozapine.²⁹

The U.S. experience and CPMS

Of the first 1,800 U.S. patients treated with clozapine, 18 cases of agranulocytosis have developed. The first death was reported in December 1990. Life-table analyses yield an estimate of up to a 2% incidence of agranulocytosis per patient-year of treatment.¹⁶

The etiology of clozapine-induced agranulocytosis is unknown, although an immune-

mediated mechanism is most likely.³¹ Similarly, the higher incidence in the United States remains unexplained. Some speculate that the higher doses of clozapine used in the U.S. may be responsible.³² Genetic differences also may play a role. For example, phenothiazine-induced agranulocytosis is rarely seen among the African-American population.³¹ At least half of the U.S. cases have involved Jewish patients.³¹ HLA typing of Jewish patients has revealed a particular genotype strongly associated with the development of agranulocytosis.³³

To prevent morbidity and mortality from agranulocytosis, Sandoz Pharmaceuticals devised a drug distribution and monitoring system for clozapine in the United States. Sandoz argued that because of deficiencies in the U.S. mental health system, voluntary compliance with suggested blood monitoring would be inadequate and unsafe. Consequently, it designed the CPMS as the initial exclusive route by which clozapine could be obtained in the United States. Weekly blood samples were obtained by Caremark Inc., a home health care agency that dispensed the medication to patients. Complete blood counts were analyzed by Roche Biomedical Laboratories, and reports were sent to the Caremark Case Manager and the physician.

The operating principle of the system was "No blood, no drug." If the patient was unavailable or refused blood testing, clozapine was not dispensed. Rigid restrictions regarding increased frequency of blood monitoring and withdrawal of medication should the white blood count fall are established. For example, if the

total white blood count decreases below 2000 or the granulocyte count below 1000, clozapine cannot be used in that patient again, a prohibition enforced by a nationwide computer database.^{30,34}

The CPMS was expensive. All patients on clozapine, regardless of dose, paid \$172 per week or \$8,944 per year.⁶ Sandoz refused to provide a breakdown of its costs for each component of the system.⁶

The clozapine controversy

Patients with chronic schizophrenia are unlikely to hold good jobs with comprehensive private health insurance to pay for clozapine. According to Laurent S. Lehman, M.D., of the Veterans Administration, clozapine is "a rich man's drug for a poor man's disease."³⁵ Therefore, out of necessity, most funding for clozapine comes from state and federal sources. Previously, these sources have been reluctant to authorize clozapine treatment. As of June 1990, 23 states paid for inpatient use of clozapine, but the number of patients supported was small.³⁶

Sandoz argues that cost savings through reduced need for inpatient care will more than offset the cost of the drug itself. A company-sponsored study estimated net savings for the mental health care system to be \$12,000 to \$15,000 per patient.³⁷ These calculations are quite complex and are subject to various criticisms.³⁶ Given high initial costs, an era of severe budgetary constraints and an uncertain cost-benefit ratio, most governmental agencies are reluctant to shift funds from other areas to pay for clozapine treatment.

The controversy over

clozapine's price attracted increasing attention. National Alliance for the Mentally Ill president Tom Foley said, "It is unconscionable to think that a possibly greedy company and stingy states are blocking the most significant advance in antipsychotic medication in 20 years."³⁸ The Veterans Administration developed plans for its own blood monitoring system that were rejected by Sandoz. An investigation alleging possible violation of the Sherman Antitrust Act was requested by the House Committee on Veterans' Affairs.³⁹ The restraint-of-trade issue regarding Sandoz involves the "bundling" of clozapine, a proprietary drug, with the generic and widely available blood testing and home visit services.

CPMS concerns were not limited to its cost. Despite Sandoz' statement that "the functions of the CPMS in no way interfere with the physician-patient relationship,"³⁰ many physicians believed otherwise. The American Medical Association and the American Psychiatric Association issued statements protesting the restrictions on physicians' ability to manage clinical care.⁴⁰ In addition, there was concern that if Sandoz successfully marketed clozapine via the CPMS, a precedent would be established for other new drugs with potentially dangerous side effects to have similar marketing systems.

The outcry over the CPMS marketing system eventually caused Sandoz to abandon the system in May 1991. The new system allows many physicians and pharmacies to handle clozapine after registering with Sandoz. The responsibility for complete blood count monitoring rests with the physician and the

dispensing pharmacy. Clozapine's estimated annual cost under the new system is \$3,640, less than half the cost under the CPMS. In response, the Health Care Financing Administration has ordered all state Medicaid programs to pay for clozapine.⁴¹

Conclusions

Clozapine is the first "atypical" antipsychotic agent released in the United States. It offers several advantages over older drugs of which the most important is demonstrated superior efficacy in treatment-resistant schizophrenia. Its most significant disadvantage is its higher incidence of the potentially fatal side effect of agranulocytosis. Despite this side effect, the drug has been widely

and increasingly used in Europe in the past decade. In Europe, a voluntary system of white blood cell monitoring has successfully managed the problem of agranulocytosis. Perhaps due to our more litigious society, this approach was deemed inadequate for the United States by Sandoz. In the United States, clozapine was exclusively available through the CPMS, initially.

The CPMS was widely criticized. Its cost, \$8,944 per patient per year, was excessive. It substituted rigid restrictions for physician judgment. The CPMS was a disturbing prototype for distributing and monitoring other new medications. Vigorous public and professional efforts resulted in abandoning the CPMS. Clozapine

is now available through more traditional channels, including physicians and pharmacies, although the monitoring is more stringent than any other medication. □

Dr. Ogle is an Indianapolis psychiatrist in private practice, and Dr. Miller is an assistant professor of psychiatry at the Indiana University School of Medicine.

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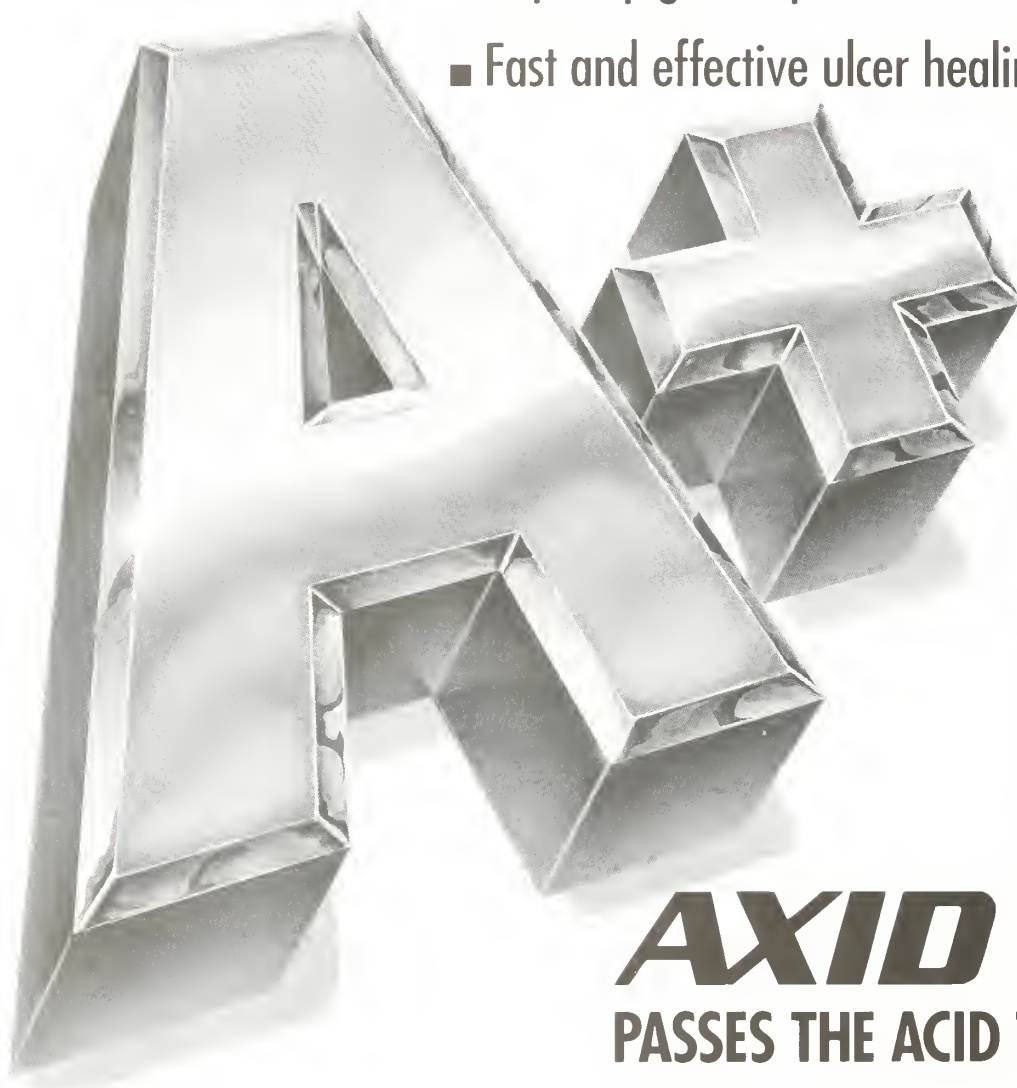
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Precautions: *General*—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

Laboratory Tests: False-positive tests for urobilinogen with Multistix[®] may occur during therapy.

Drug Interactions: No interactions have been observed with theophylline, chlordiazepoxide, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

Carcinogenesis, Mutagenesis, Impairment of Fertility: A 2-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a 2-year study in mice, there was no evidence of a carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a 2-generation, prenatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

Pregnancy—Teratogenic Effects—Pregnancy Category C: Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in 1 fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spinal bifida, hydrocephaly, and enlarged heart in 1 fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers: Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

Pediatric Use: Safety and effectiveness in children have not been established.

Use in Elderly Patients: Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events were due to the drug.

Hepatic: Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L) in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to 3 times the upper limit of normal, however, did not significantly differ from that in placebo patients. All abnormalities were reversible after discontinuation of Axid. Since market introduction, hepatitis and jaundice have been reported. Rare cases of cholestatic or mixed hepatocellular and cholestatic injury with jaundice have been reported with reversal of the abnormalities after discontinuation of Axid.

Cardiovascular: In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in 2 individuals administered Axid and in 3 untreated subjects.

CNS: Rare cases of reversible mental confusion have been reported.

Endocrine: Clinical pharmacology studies and controlled clinical trials showed no evidence of antiandrogenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

Hematologic: Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H₂-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumental: Sweating and urticaria were reported significantly more frequently in nizatidine than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity: As with other H₂-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

Other: Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

Overdosage: Overdoses of Axid have been reported rarely. If overdosage occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis does not substantially increase clearance of nizatidine due to its large volume of distribution.

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2. *Scand J Gastroenterol* 1987;22(suppl 136):161-70.
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4. *Am J Gastroenterol* 1989;84:769-774.

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Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors, its effect on blood pressure, if any, would be to lower it; however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

Indications: Yocon[®] is indicated as a sympatholytic and mydriatic. It may have activity as an aphrodisiac.

Contraindications: Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

Warning: Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

Adverse Reactions: Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral alpha-2 adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.^{1,2} Also dizziness, headache, skin flushing reported when used orally.^{1,3}

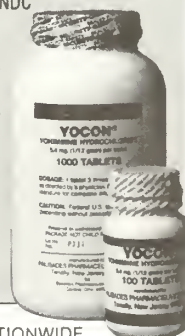
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

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Conservative treatment of genu valgus and varum with medial/lateral heel wedges

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Fifty-five patients diagnosed with degenerative joint disease of the knee and with either genu valgus or genu varum were studied. We found that inserting medial/lateral heel wedges, respectively, in their shoes decreased the knee pain with angulation of the knee joint in some cases, and, in others, diminished the pain totally. The study's hypothesis is that pain is produced by weight progressively shifting to the worn out side of the knees and that elevating the opposite side of the foot will transfer the forces transmitted from the sole of the foot to the other side of the affected joint.

Methods and materials

To discern the amount of wear and tear to the joint surface, the clinical exam included a standing alignment x-ray (*Figure*). The length from the x-ray tube to the standing x-ray film cassette was 86 inches. The x-ray was taken from the superior aspect of the pelvis to the foot. Marks were made at the center of the femoral head, center of the knee and center of the ankle. A line was drawn connecting the marks, and a goniometer was used to measure the degree of angulation. A

Abstract

Symptomatic bowlegs and knock-knees are common in the aging person and aging athlete secondary to knee trauma. Diagnosis is made by observation and in mild degrees by a standing alignment x-ray that shows narrowing of the joint surface on the appropriate side. The patients complained of pain on the convexity side of the deformity. Treatment consisted of a simple exercise program, non-steroidal anti-inflammatory drugs and appropriate 1/8-inch wedges on the lateral side of the heel for bowlegs or on the medial side of the heel for knock-knees.

The effect of a simple heel wedge formed the basis for conservative treatment of symptomatic knee deformities.

standing alignment x-ray was more realistic because it showed the patient's actual weight dispersion over the joint surface.

The clinical exam included listening to the affected joint with a stethoscope while rotating it through its range of motion. If a grinding or crackling sound is heard, the diagnosis is more apt to be a narrowed joint space. If the joint surface was "noisy," the incidence of correlation with genu varum or valgus corresponded.

Treatment

Treatment consisted of prescribing aspirin or aspirin-like substances as anti-inflammatories or, if the pain persisted, prescribing a low dose of a nonsteroidal anti-inflammatory drug (NSAID). Additionally, heel wedges were prescribed. A prescription was written for 1/

8-inch lateral wedge for bowlegs or 1/8-inch medial wedge for knock-knees. Wedges usually were placed in only the shoe of the affected foot unless the other knee also had signs of joint space wearing. Patients reported that within one week they noticed their joint pain was either absent or appreciably lessened. Most patients (80%) continued taking NSAIDs and using wedges because of pain relief and increased activity. The 20% that discontinued NSAIDs still had comfortable knees.

Discussion

Patients were phoned and asked questions from our "Osteoarthritis Clinical Evaluation" form. The form included age, sex, height and weight of the patient. It also included the duration in months of

symptoms before the patients used the inserts and how long the inserts had been worn. If a patient did not have the wedge prescription filled, he or she was deleted from the study.

Patients with mild forms of bowlegs or knock-knees were much more acutely helped by the wedged insoles than those with greater angulations or degrees of bowlegs and knock-knees. Two studies by Drs. Sasaki and Yasuda bore similar statistics. Their article said, "The prescription of a wedged insole was significantly more effective for patients with mild osteoarthritis and ineffective for those with advanced osteoarthritis."

Results

1. With reference to other joints involved, 36% had no other joint involvement, and 64% had other joints involved, either the knee or the hip, but 98% of the time it was the other knee.

2. Walking aids – Eighty-three percent used no walking aid, 14% sometimes used a cane,



Figure

and 3% always used a cane.

3. Pain scale with walking – After the wedges were inserted and used for one week, 18% had no change in pain while walking, while 45% went from a moderate pain to no pain at all, and 37% went from severe pain to mild pain or no pain at all.

4. Rest – After the heel wedges were inserted, 48% found no change in pain with rest. Forty-five percent went from moderate to mild pain with rest without the wedges to no pain at all after using the wedges for one week. Seven percent found that even when resting they would have severe knee pain but after using the heel wedges for one week their pain, with rest, went from severe to mild or none at all.

5. Walking – Before the wedges, 27% had unlimited walking with no pain, 9% could walk for one mile with no pain, 28% could walk several blocks with no pain, and 36% could walk less than a block with no pain. After the heel wedges, 40% had unlimited ability to walk without pain, 29% could walk one mile without pain, 27% could walk several blocks without pain, and 4% could walk less than one block without pain.

6. Use of anti-inflammatories – Before the heel wedges, 63% used anti-inflammatory medications, and after the heel wedges, 80% used anti-inflammatories.

7. Analgesics – Twenty-three percent used analgesics before the heel wedges were used, and 24% used analgesics after the heel wedges were used.

8. If the wedges were discontinued – If patients discontinued using the wedges, 30% found the same pain reaction, the same pain and the same activity level. Sixty-nine percent said if they stopped

wearing the wedges, their pain increased and their activity decreased. One percent said they never stopped wearing their wedges so they could not tell what would happen or how they would react if they stopped using them.

9. Activities done now with the wedges – Fifty-six percent said their activity increased with the wedges, 41% said their activity level remained the same, and 3% said they were not sure if their activities increased or decreased.

10. Response to the inserts – Fifty-one percent said they were extremely satisfied and very enthusiastic, while 46% said the wedges were some help and they were satisfied. Three percent said the wedges were no help.

Conclusion

The wedged insole diminishes excessive unloading of the medial and/or lateral joint surface of the knee by changing the angle of the force through the joint space. With the insoles, anti-inflammatory medications, exercise and occasional injection with low-dose steroids, a patient's joint space can be conservatively salvaged and placed in "limbo" indefinitely. □

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Surgical myocardial revascularization for the 1990s

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Direct myocardial revascularization began in the late 1960s using saphenous vein for aorticocoronary bypass grafting. Coronary artery bypass (CAB) withstood the rigorous testing of three prospective randomized trials comparing surgical against medical therapy in the 1970s. These studies demonstrated increased longevity with CAB in cases of left main disease, select two-vessel and three-vessel coronary occlusive disease with evidence of left ventricular dysfunction or severe ischemia.¹

In the early 1980s, percutaneous transluminal coronary angioplasty (PTCA) was introduced and rapidly increased in scope. As PTCA information accumulated, researchers learned that the indications for PTCA were separate and did not replace the indications for CAB as defined by randomized studies.

Since these trials, vast improvements have been made in the medical therapy of ischemic heart disease, including long-acting beta and calcium channel blockers. Major advances in the surgical treatment of ischemic

heart disease also have evolved. Modern operations for coronary artery disease are different from those performed during the clinical trials of the 1970s.

Arterial bypass conduit

Saphenous vein grafts have a 30% occlusion rate and a 70% disease rate five years after implantation. The marked superiority of the internal mammary artery (IMA) as a bypass conduit has now been established, with patency rates of 90% to 95% at 10 years. Furthermore, this superior patency rate translates into a prolonged 15-year angina-free survival for patients receiving one or more IMA grafts when compared with saphenous vein grafts alone.² At Indiana University, multiple vessel coronary revascularization often can be accomplished using a single internal mammary artery.³ Recent evidence suggests that using both the right and left inter-

Abstract

After two decades, coronary artery surgery remains a reliable mainstay in the treatment of select patients suffering from ischemic heart disease. However, surgical myocardial revascularization has undergone continuous evolution. Several trends have emerged, including increased use of autogenous artery for bypass conduit, extending indications to include patients with poor ventricular function or following recent myocardial infarction and new techniques, such as surgical angioplasty of the left main coronary artery.

nal mammary arteries improves survival over the use of a single arterial conduit.⁴

The success achieved with IMA conduits has led to increased interest in other CAB arterial conduits. Complete myocardial revascularization with only arterial conduit can be accomplished using both IMAs with either the right gastroepiploic or inferior epigastric arteries if necessary (*Figure 1*).^{5,6} These procedures are time consuming and technically demanding; however, they are justified in younger patients to diminish the prospects of symptom recurrence or reoperation. The use of an autogenous arterial conduit for CAB is essential for patients with either absent or poor quality saphenous veins.

Poor left ventricular function

Coronary artery surgery has expanded during the last decade to include patients with ejection frac-

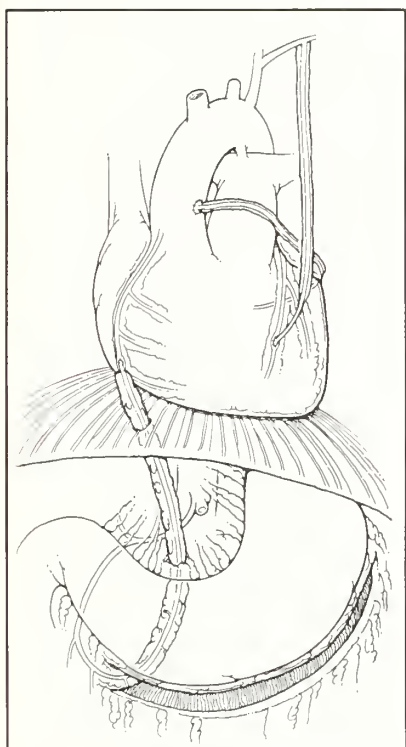


Figure 1: An example of total myocardial revascularization with autogenous arterial conduit. A sequential left internal mammary artery graft alone (side-to-side to the diagonal artery, then end-to-side to the left anterior descending artery) alone provides 50% of the myocardial revascularization. A "free" right IMA from the aorta to the circumflex coronary arteries and a right gastroepiploic artery passing through the diaphragm to the right coronary artery, provide the remainder of the revascularization.

tions less than 35%. This is a direct result of improving myocardial preservation techniques, making surgical revascularization a therapeutic option in patients previously considered at prohibitive operative risk. Although no



Figure 2A: Cineangiography of a 42-year-old with an isolated high grade ostial left main stenosis (arrow) and a positive treadmill exertion test treated with surgical angioplasty.

randomized trials have been done comparing medical versus surgical therapy in patients with significant left ventricular dysfunction, retrospective data suggest that survival is improved with surgical therapy in select cases.⁷

Patients with continued ischemia after acute myocardial infarction have a notoriously high medically treated mortality. Reports in the 1970s demonstrated exceedingly high operative mortality in patients undergoing CAB after recent myocardial infarction. With recently improved myocardial preservation techniques, surgical revascularization after infarction has operative mortality rates equivalent to those of the elective situation.⁸ Multivariate analysis has demonstrated that the timing of CAB after established infarction is not a significant risk factor for operative death when compared to other factors, such as advanced age and poor ventricular function.⁹ Early surgical revascularization in patients who demonstrate persistent ischemia may decrease the high medically treated mortality rate as compared to previous practices of

delaying surgical therapy after acute infarction.

New procedures

Although coronary endarterectomy for diffuse occlusive disease has been technically feasible, the procedure previously was viewed with skepticism. Recently, a large series of patients undergoing coronary endarterectomy demonstrated that this technique adds only a small amount of operative risk with good long-term results in many patients who were previously inoperable.¹⁰ The prospects of intraoperative laser arthroectomy as an adjunct to CAB in patients with multiple occlusive lesions also may be possible.¹¹

For patients with isolated proximal left main coronary stenosis, surgical angioplasty recently has been promoted as a revascularizing procedure that maintains antegrade native left-sided coronary arterial perfusion without consuming appreciable lengths of venous graft material (Figures 2A and 2B). This artery, posterior to the aorta, previously was considered inaccessible to safe, direct arterial reconstruction.

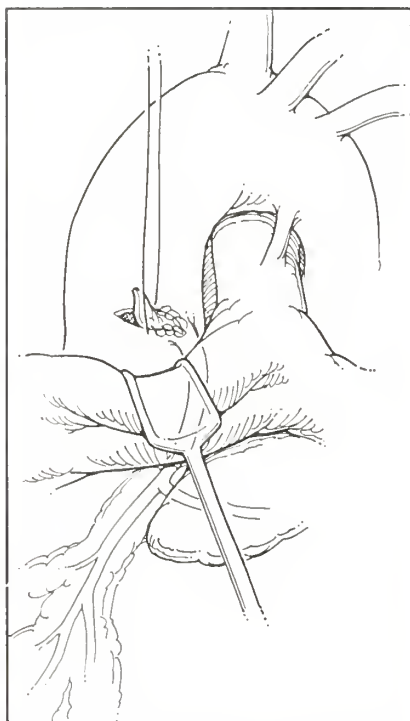


Figure 2B: Technical illustration of a left main coronary angioplasty. An aortotomy is continued posteriorly onto the proximal left main coronary artery. Autogenous saphenous vein is then used as a patch to relieve the obstruction.

In one large series, the two-year follow-up produced low operative mortality and near uniform angina-free survival.¹²

Conclusion

Prospective randomized trials comparing surgery against medical therapy have defined subsets of patients in whom CAB is life-prolonging therapy. Although medical therapy for ischemic heart disease has dramatically improved since the completion of these studies, surgical revascularization has undergone at least equal evolution and innovation. Current trends hold promise for more durable and safe coronary artery surgery in the 1990s. □

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Ultrasound and computed tomography-guided percutaneous cholecystostomy

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Cholecystostomy is the treatment of choice for acute cholecystitis.^{1,2} However, in critically ill patients, there is increased morbidity and mortality. Surgical cholecystostomy long has been recognized as beneficial in critically ill patients with acute cholecystitis who are at high risk for surviving cholecystectomy.^{1,2,3} Biliary tract decompression helps

decrease morbidity and mortality rates perioperatively until the more definitive treatment, cholecystectomy, can be performed.⁴ However, mortality rates with cholecystostomy have been documented to be as high as 20% to 30% due to the patients' underlying disease process.^{1,5}

The recent advances of modern imaging modalities have made percutaneous cholecystostomy an attractive alternative for high-risk patients. Under fluoroscopic or sonographic guidance, percutaneous cholecystostomy via a transhepatic approach has been a

safe and effective bedside procedure with few complications.^{1-3,6,7}

Percutaneous cholecystostomy not only offers temporary relief for high risk cholecystectomy patients by way of biliary tract decompression, but also allows diagnosis of biliary tract infection when clinical and radiographical findings are suggested.^{10,11} In addition, percutaneous aspiration of the gallbladder can identify the biliary tract as a source of sepsis in the critically ill patient with an unknown focus of infection. Aspiration can also help rule out biliary tract disease in patients

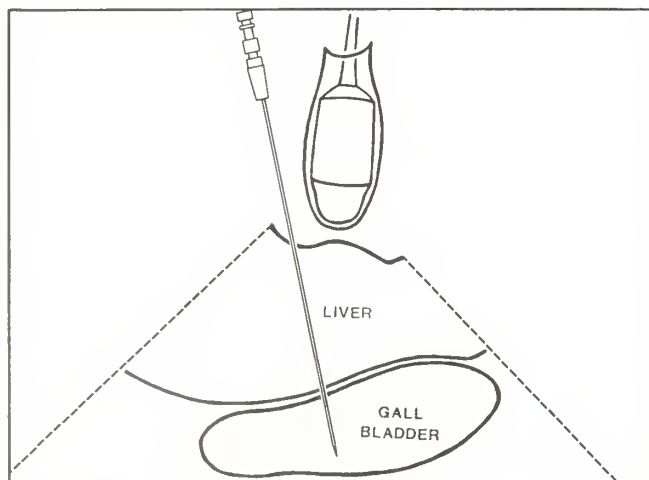


Figure 1A.

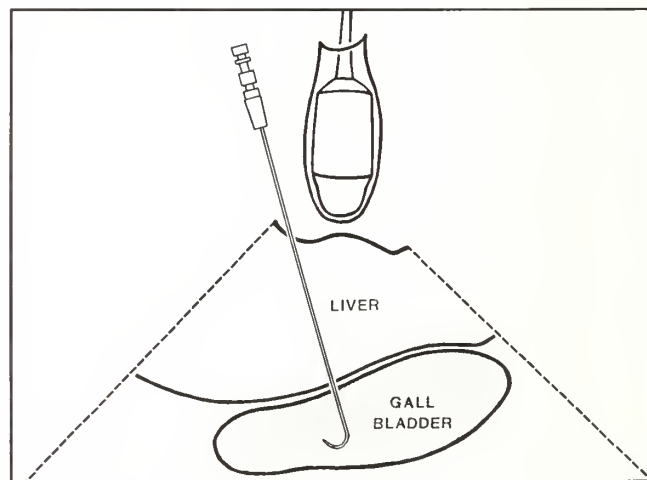


Figure 1B.

Figure 1: Single puncture percutaneous cholecystostomy. The gallbladder is scanned, and the point of entry and depth of penetration are determined. Figure 1A: The stylet/cannula/catheter complex is introduced into the gallbladder in a single puncture. The position is confirmed by re-scanning. Figure 1B: The stylet/cannula is removed, leaving the catheter coiled within the gallbladder lumen.

with negative or equivocal ultrasound examinations or cholescintigraphy.⁶ Aspiration is especially important in establishing the diagnosis of acute acalculous cholecystitis, which often has been associated with a high mortality rate.

This article discusses the method and results of both ultrasound-guided and computed tomography (CT) guided percutaneous transhepatic cholecystostomy at our institution as performed in 14 critically ill patients with either inflammatory or obstructive biliary tract disease.

Methods

Over a five-year period, percutaneous transhepatic cholecystostomy under ultrasound and CT guidance was performed in 14 critically ill patients at Methodist Hospital in Indianapolis. The patients' mean age was 65 years, with a range from 35 to 92 years. In all cases of ultrasound localization and gallbladder aspiration/catheter placement, the procedure was performed at the patient's bedside in the intensive care unit. CT-guided cholecystostomy was performed in the department.

Abnormalities of the gallbladder were seen on previous ultrasound, Hydroxal Iminodiacetic Acid (HIDA), or CT studies in all 14 high-risk patients. In nine patients, ultrasound findings suggested a distended or enlarged gallbladder. Four patients demonstrated thickened gallbladder wall, cholelithiasis and dilation of the biliary tract. HIDA scans were obtained in eight patients, seven demonstrating a non-visualized gallbladder consistent with acute cholecystitis and one being normal. In one patient, CT was the only study showing a dilated gallbladder, gallstones and a dilated common bile duct. Six pa-



Figure 2: Ultrasonographic monitoring of percutaneous cholecystostomy. Transverse scan shows an enlarged gallbladder filled with sludge. The stylet/cannula/catheter complex is seen as a highly echogenic linear signal entering via the right anterior axillary line, through the liver, and puncturing the gallbladder.

tients had gram negative sepsis at the time of diagnosis. Diagnosis of biliary tract inflammation or obstruction was based on clinical history, physical examination, laboratory data and ultrasound and biliary scintillation scanning. CT was performed in three patients to obtain further diagnostic information.

Ultrasound-guided procedures were performed at patients' bedsides using a Philips SDR 2000 scanner (Philips Medical Systems, San Francisco, Calif.). CT-guided procedures were performed using a GE 9800 scanner (GE Medical Systems, Cincinnati, Ohio). Elecath 5 and 8 French drainage catheters were used (Elecath Catheter Corp., Rahway, N.J.).

After informed consent, patients were scanned to select stylet/catheter approach. In all

cases, percutaneous puncture and aspiration of the gallbladder were performed via a transhepatic approach through the anterior wall of the gallbladder (*Figures 1A and 1B*). This approach was selected because the liver provided a decreased likelihood of free peritoneal bile leakage once the gallbladder had been punctured.

Under sterile technique and local anesthesia, an Elecath stylet/cannula/catheter complex was advanced through the liver into the gallbladder. Once repeat scanning confirmed the location of the catheter tip within the gallbladder, the stylet and cannula were removed and the gallbladder contents aspirated (*Figures 2 and 3*). Aspiration of small amounts of bilious fluid and a 3-5 cc injection of sterile saline confirmed adequate catheter placement. Bile

samples were sent for culture and evaluation by gram stain. In all cases, repeated aspirations using a 20 cc syringe were performed to decompress the gallbladder by removing as much fluid as possible. Repeat scanning confirmed drainage of the gallbladder by a reduction in gallbladder size and volume. The catheter was then sutured to the patient's skin and dressed appropriately. Postprocedure orders included irrigation three times daily and aspiration of the gallbladder with normal saline, appropriate antibiotic therapy and plain radiographs of the abdomen.

Results

All attempts to catheterize the gallbladder were successful. There were no complications related to the puncture.

Ultrasound-guided percutaneous cholecystostomy was performed at bedside on nine patients. CT-guided percutaneous cholecystostomy was performed on five patients. Bile cultures were positive in five patients, four of which had gram negative sepsis. The catheters were left in place an average of nine days, ranging from two to 17 days.

In six patients, the procedure was definitive, with no need for further surgical intervention. The procedure was palliative in six patients and had no effect on two patients, one of whom, although diagnostic for gram negative sepsis, had cholecystectomy and one of whom eventually died of overwhelming sepsis.

In three patients, cholecystectomy was performed. As described above, one patient with gallstones had a positive cholecystostomy diagnostic of gram negative sepsis, but the patient clinically continued to have

high-grade fever; therefore, surgery was performed. A second patient with acute acalculous cholecystitis had cholecystostomy diagnostic of gram negative sepsis and dramatically improved. He was discharged but returned two months later with similar symptoms and cholecystectomy was performed. The third patient had cholecystogram 17 days postpercutaneous cholecystostomy showing multiple stones, and cholecystectomy was performed electively once the patient's condition stabilized.

Five patients died of unrelated causes. One died secondary to pancreatic head malignancy. Two patients died of cardiac failure. A fourth patient was weaned off his life support system. A fifth patient died of overwhelming sepsis secondary to pancreatic abscess.

Of the five patients with gallstones, three died of pancreatic head malignancy or cardiac arrest,

while two had cholecystectomy as the definitive procedure.

Minor complications included one catheter being accidentally pulled out with no major sequelae, while one catheter got clogged and drainage was discontinued.

In most patients, prompt response to percutaneous drainage was observed, except in two patients. One of the two had cholecystectomy, while the second died of overwhelming sepsis secondary to pancreatic abscess from acute pancreatitis.

Discussion

Cholecystectomy is the definitive treatment of choice in patients with acute cholecystitis. However, critically ill patients are at higher risk for surgery secondary to complicating factors such as concurrent cardiorespiratory disease, immunosuppression and metabolic imbalance. Surgical

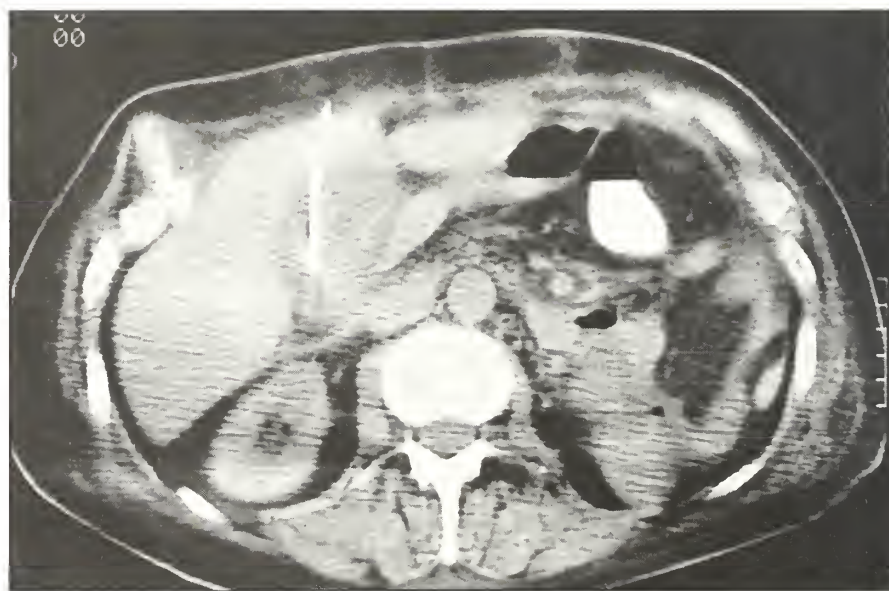


Figure 3: Computed tomographic monitoring of percutaneous cholecystostomy. The catheter is visualized coiled within the gallbladder.

cholecystostomy, although technically easier, also has high morbidity and mortality.

The mortality rates for these procedures has raised questions about safety and efficacy in the critically ill patient with biliary tract disease. The mortality rate for acute cholecystitis in patients over 65 years of age is 3.5%.¹ As expected with any surgical or interventional procedure, the death rate rises with the complexity of the procedure.

Percutaneous transhepatic cholecystostomy has been an accepted procedure in patients considered poor operative risks.^{1,3,6,7} The procedure offers a temporary solution to allow a patient's overall condition to stabilize before definitive cholecystectomy can be performed.^{1,3,6,8} Percutaneous cholecystostomy has proven valuable in the management of both inflammatory and obstructive biliary tract diseases.^{2,6,7} Decompression of the biliary tract using this procedure has become established as both a diagnostic and a therapeutic procedure.^{2,6,7}

In using this procedure to diagnose and treat biliary tract diseases, we reviewed this series of high-risk patients who underwent CT- and ultrasound-guided percutaneous cholecystostomy. Although retrospective and non-randomized, this small series confirms the overall safety and efficacy of the procedure in high-risk septic patients with inflammatory or obstructive biliary tract diseases.

In this series, all patients were considered too ill to undergo surgical cholecystostomy or cholecystectomy. Percutaneous cholecystostomy was successfully performed in all 14 patients. There were no immediate complications

directly related to this procedure. Twelve of the 14 patients had immediate resolution of symptoms of acute cholecystitis, resolution of sepsis, or both.

Five deaths occurred after percutaneous cholecystostomy was performed. Two patients died from overwhelming sepsis, one died from a terminal malignancy, one died from cardiac arrest, and one was weaned off his life support. All of these deaths were unrelated to the gallbladder drainage procedure. In retrospect, however, these patients were too advanced in their disease for this procedure to help. In our limited series, none of our patients experienced vagal reactions as have been previously reported.⁹

Percutaneous cholecystostomy offered several advantages, including immediate relief of pain, resolution of sepsis and delaying or avoiding surgical intervention. In addition, CT and ultrasound guidance allowed for accurate localization and selection of approach. Our limited experience with percutaneous cholecystostomy indicates that it can be readily performed on an emergency basis under local anesthesia, often as a bedside procedure to avoid moving an unstable patient from the intensive care unit. It requires only minutes to complete insertion and has the advantage of being both a diagnostic and therapeutic procedure. This series confirms the view that percutaneous transhepatic cholecystostomy is a safe and effective procedure in the management of patients with inflammatory or obstructive biliary diseases. □

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Thymic hyperplasia after chemotherapy: Two case reports and a literature review

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Abnormal masses appearing after treatment of malignancies are of obvious concern because they often represent recurrent disease. Mediastinal masses are commonly the result of metastatic lymph node involvement. They also occur as the site of origin and relapse of lymphomas and germ cell tumors, as well as other malignancies. Several benign causes of mediastinal masses have been identified in patients previously treated for malignancies.^{1,2}

Thymic hyperplasia is a benign disorder that often presents itself radiographically as an anterior mediastinal mass. Thymic hyperplasia is an uncommon condition, but its occurrence has been associated with prior chemotherapy. This article discusses two cases of thymic hyperplasia occurring after systemic chemotherapy.

Case reports

Case 1 – A previously healthy 17-year-old girl with weight loss and cervical adenopathy was seen in August 1988. A left cervical lymph node biopsy revealed nodular sclerosing Hodgkin's disease. The initial work-up dem-

onstrated anterior mediastinal, pretracheal, subcarinal, supraclavicular and retrocrural adenopathy as well as splenic involvement, consistent with stage III-B disease. She received systemic chemotherapy with six cycles of standard dose mechlorethamine, vincristine, procarbazine, prednisone, doxorubicin, bleomycin and vinblastine from August 1988 until January 1989. The chest radiograph normalized, and follow-up computed tomography (CT) scans of the chest and abdomen in February 1989 revealed nearly complete resolution of the previously identified adenopathy (*Figure 1A*).

The patient appeared to be in clinical complete remission; however, a routine chest radiograph in June 1989 showed a subtle change in the aortopulmonary window. This apparent mass increased in size during the next several months, and a chest CT scan in

Abstract

The development of mediastinal masses in patients previously treated for cancer frequently indicates recurrent or metastatic disease. In this article we describe two patients previously treated for malignancies who had new or recurrent anterior mediastinal masses. These masses proved to be markedly enlarged thymuses due to thymic hyperplasia. The development of thymic hyperplasia after systemic chemotherapy is an uncommon but well known phenomenon. The management of such patients includes close observation or surgical intervention. Empiric antineoplastic therapy is not indicated.

October 1989 revealed a 3x4x5 cm soft tissue mass in the anterior mediastinum with extension into the aortopulmonary window (*Figure 1B*). The patient underwent a limited left thoracotomy, and a markedly enlarged thymus was discovered with no evidence of adenopathy or other masses. Pathology revealed normal thymic elements consistent with true thymic hyperplasia. The patient recovered uneventfully and has remained in clinical remission. Subsequent chest radiographs have been normal.

Case 2 – A previously healthy 16-year-old boy with a right testicular mass was seen in July 1987. A right orchiectomy was performed, and histopathologic examination revealed pure embryonal cell carcinoma. Further work-up showed bilateral pulmonary metastases, bilateral hilar and retroperitoneal adenopathy and elevated alpha-fetoprotein and

beta-hcg levels. He received four cycles of chemotherapy with cisplatin, bleomycin and etoposide from August 1987 until October 1987. Serum alpha-fetoprotein and beta-hcg levels decreased to normal, and a follow-up CT scan showed nearly complete resolution of disease.

The patient remained asymptomatic, but a repeat CT scan in April 1988 revealed a new right lower lobe pulmonary nodule, a new anterior mediastinal mass and recurrent retroperitoneal adenopathy. In June 1988, an open lung biopsy of the right lower lobe nodule revealed a low-grade magna-reticularis type of yolk sac tumor. The patient was observed, but a repeat CT scan in October 1988 showed a left posterior mediastinal mass, new pulmonary nodules, increased retroperitoneal adenopathy and increased size of the anterior mediastinal mass. The patient's serum markers remained normal. In October and November, two cycles of salvage chemotherapy with vinblastine, ifosfamide and

cisplatin were given, but the patient had no radiologic response.

On Jan. 17, 1989, the patient underwent a retroperitoneal lymphadenectomy. Pathology revealed only necrotic fibrous tissue. On Jan. 30, 1989, the patient underwent thoracotomy, and the radiographically identified abnormalities were excised. The posterior mediastinal mass and pulmonary nodules were identified as mature teratoma with necrosis and no viable tumor cells. The anterior mediastinal mass was a markedly enlarged thymus. Pathology revealed normal thymic tissue consistent with true hyperplasia. The patient has recovered and remained free of progressive disease.

Discussion

True thymic hyperplasia is defined as an increase of both size and weight of the thymus gland while it maintains normal microscopic architecture.³ This condition is distinct from lymphofollicular hyperplasia (formerly also termed thymic hyperplasia),

which implies the presence of lymph follicles with germinal centers within the thymus, regardless of the size of the gland. The latter is the type classically associated with myasthenia gravis, systemic lupus erythematosus, Addison's disease and autoimmune hemolytic anemia.⁴ It is also seen occasionally in people who are otherwise normal.

True thymic hyperplasia has been described in three different settings:³ 1) true thymic hyperplasia not associated with any other disease, (extremely rare, only 11 cases described);⁵ 2) in association with endocrine abnormalities, sarcoidosis and Beckwith-Wiedemann syndrome; 3) enlargement of the thymus representing a form of "rebound phenomenon" occurring in a number of conditions, including recovery from severe stress situations, after administration of corticosteroids and after chemotherapy in the treatment of malignant diseases.

Thymic hyperplasia associated with chemotherapy was first de-

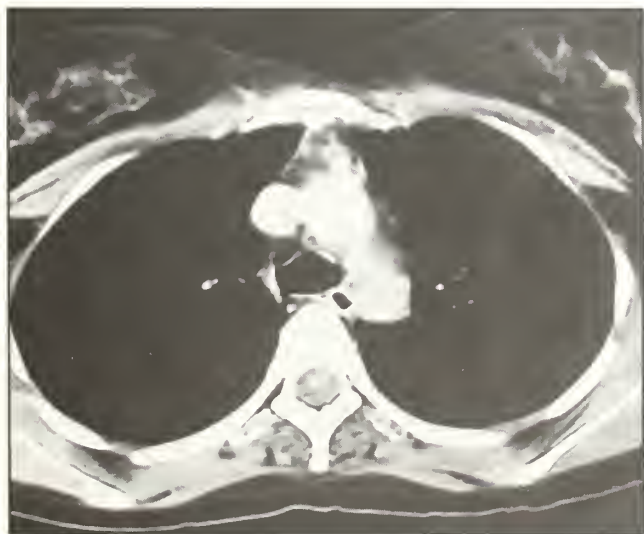


Figure 1A: Minimal residual anterior mediastinal soft tissue following completion of therapy.

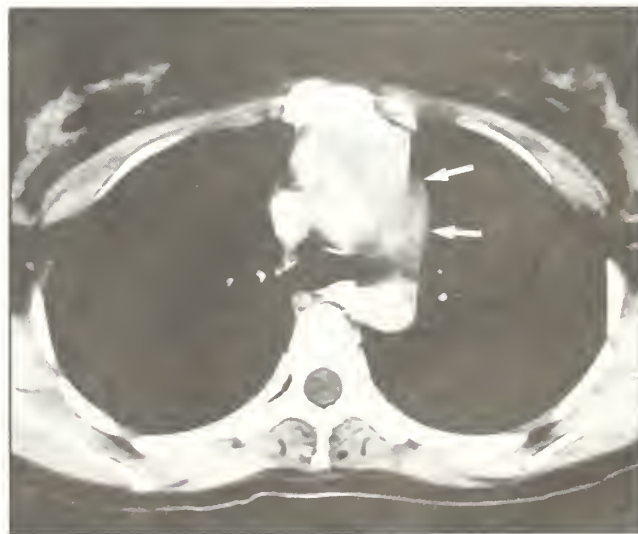


Figure 1B: Soft tissue mass in anterior mediastinum and aortopulmonary window (arrows).

scribed by Cohen and colleagues who discovered mediastinal widening during or after chemotherapy in seven children.⁶ Two of these patients underwent biopsy and had changes consistent with true thymic hyperplasia. Two other patients were given a steroid trial and demonstrated marked decrease in size of the mediastinal mass, implying benign thymic enlargement. The other patients were observed. All patients reportedly remained free of recurrent disease.

Shin and Ho subsequently described an adult patient with Hodgkin's disease who developed thymic hyperplasia after successful chemotherapy.⁷ This patient's course was complicated by drug-induced pulmonary fibrosis, requiring steroid therapy, and disseminated herpes zoster. In this case, steroid withdrawal and/or recovery from the herpes zoster infection may have played a role in the development of thymic hyperplasia.⁸

A later report by Due and colleagues concerned a 16-year-old patient with testicular germ cell carcinoma.⁹ Six months after the patient completed chemotherapy, a new anterior mediastinal mass was discovered. The mass was resected, and the pathology was consistent with true thymic hyperplasia. Immunohistologic study revealed a normal distribution and antigen expression of lymphocytes and epithelial cells. There was no evidence of selective proliferation of lymphocytic or nonlymphocytic subpopulations within the thymus. These authors concurred, therefore, that the thymic enlargement after chemotherapy was a simple rebound phenomenon.

Several other case reports have described thymic hyper-

plasia associated with chemotherapy, including other patients with Hodgkin's disease and germ cell tumors.¹⁰⁻¹² Similar to the patients described in this report, those previously described had thymus enlargement approximately two to 10 months after completion of chemotherapy and also had favorable outcomes.

Kissin and colleagues reported a series of 200 patients with germ cell tumors; 120 were treated with chemotherapy for metastatic disease and the other 80 served as a control group.¹³ A retrospective review of serial CT scans demonstrated that thymic enlargement occurred three to 14 months after initiation of treatment in 14 of the 120 patients treated, but in only one patient in the control group. Thirteen of the 14 patients (93%) with thymic enlargement after chemotherapy were well and disease free on mean follow-up of 45 months, compared with 83 of 106 patients (78%) of the group that did not show thymic enlargement after chemotherapy.

The management of patients with new or recurrent anterior mediastinal masses after treatment for malignancies is controversial. One suggested approach is a provocative steroid trial. Ford and colleagues reported a series of 14 children identified with new or recurrent mediastinal masses during or after chemotherapeutic treatment for malignant disease.¹⁴ Five of these patients were treated with steroids and showed resolution of the mediastinal masses in 48 hours to seven days without recurrence. They recommend a step-by-step approach to the evaluation of these patients. The patient should first be treated with oral prednisone (60 mg/m²/day for seven to 10 days). If the

patient shows a complete or partial resolution, then follow-up includes frequent chest radiographs and/or a second course of steroids. If the mass fails to respond to steroids or enlarges, then open biopsy should be performed to clarify the diagnosis. This trial is not indicated if the patient's initial diagnosis was steroid sensitive lymphoma or leukemia.

We suggest a more conservative approach. If the patient has an anterior mediastinal mass as an isolated lesion and this area was not previously involved, and if there otherwise is no evidence of disease and the patient had received optimal therapy for his initial disease, close observation alone is reasonable. If the patient has a mediastinal mass in a previously involved area and shows any other signs of active disease, surgery for a definitive diagnosis is indicated. Regardless of one's approach to the evaluation and management of new or recurrent anterior mediastinal masses occurring after treatment of malignancies, the association of thymic hyperplasia and prior chemotherapy must be kept in mind. In this situation, the administration of antineoplastic therapy without tissue diagnosis is inappropriate. □

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script.

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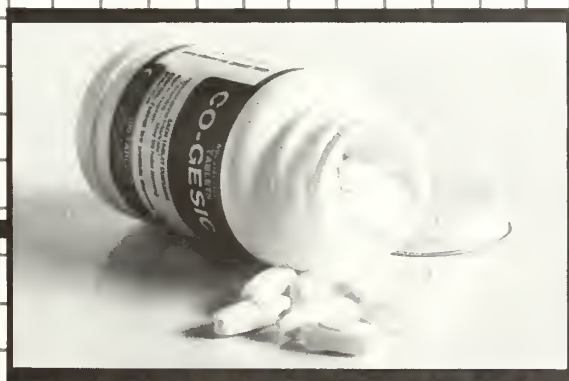
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What you should know about the Americans with Disabilities Act

John W. Bowers, J.D., LL.M.
Fort Wayne

Sally is a bright, young nursing school graduate you've hired to join your practice as a nurse. She started work a week ago but has been an hour or more late every day. Today, you learned that an irate patient shouted at her in your waiting room in front of several other patients causing her to become terribly upset and embarrassed. A few minutes later, she suffered an epileptic seizure. She tells you that she has epilepsy and does not drive, so she must depend on friends or family for rides to work. She says her medicine allows her to function normally, although great stress has been known to trigger a seizure. She wants to know if you are going to fire her.

The simple truth is you are torn between your personal and your business feelings. She is intelligent, skilled and eager to work and learn; however, sometimes she is not dependable, as her behavior in stressful situations and her tardiness demonstrate.

You and countless other employers must do more than just make a personal and business decision. After July 26, 1992, employers also must make a critical legal decision. On that date, the Americans with Disabilities Act (ADA) becomes effective.¹

Next year, the law will apply

to employers with 25 or more employees. Three years from now, all employers with 15 or more employees will be covered.

What is this new federal law and how will it affect Indiana physician-employers? The ADA is a comprehensive federal civil rights act that is designed to provide "a clear and comprehensive national mandate for the elimination of [employment] discrimination against individuals with disabilities."² To achieve this objective, Congress enacted a law that prohibits employers from excluding people from jobs, services, activities or benefits based on disability.³ The ADA contains stringent penalties for discrimina-

type law. Certain standards must be met for a person to qualify, namely that only those people with a disability who are qualified to perform a particular job, notwithstanding their disability, gain the act's protection. The law defines the term "qualified individual with a disability" to mean "an individual with a disability who, with or without reasonable accommodation, can perform the essential functions of the employment position that such individual holds or desires."⁷ Employers should understand that a person who is disabled must possess the requisite knowledge, skills, education and physical and mental ability to perform the essential job

functions, with or without reasonable accommodation.⁸

Let's return to our scenario with Sally. The law mandates that employers "reasonably

accommodate" employees.⁹ One possible accommodation is flexible working hours. Is it critical for Sally to be at the office at 8 a.m.? Is an hour later really important or not?

Realistically, reasonable accommodation is a highly fact-specific inquiry that involves the particular needs of your office. Such an inquiry may result in different answers for different jobs. For example, a surgery nurse – as opposed to one who never leaves the office – will experience a great deal of stress in life-threatening situations. A person who "poses a direct threat to the

Next year, the law will apply to employers with 25 or more employees. Three years from now, all employers with 15 or more employees will be covered.

tion that include equitable and injunctive relief resulting in hiring, or reinstatement if fired, restoration of benefits, and attorneys' fees.⁴

More than 40 million Americans are disabled.⁵ Unfortunately, the law does not list all covered disabilities. Instead, it broadly defines "disability" to include people with actual physical and mental handicaps as well as people who have a history of or who are perceived by others to be disabled.⁶ However, not every disabled person is immediately entitled to coverage. The ADA is not an affirmative action or quota

health or safety of (another) in the workplace that cannot be eliminated by reasonable accommodation" can be denied, excluded or removed from a job or task. This "direct threat" means a significant risk to the health or safety of others exists.¹⁰ Reasonable accommodation may include, among other things, job restructuring, part-time or modified work schedules, the purchase or a modification of equipment or devices, and other similar accommodations for people with disabilities.¹¹

However, reasonable accommodation is not required if an employer can show it is an "undue hardship" to the business. The ADA states an undue hardship can exist where the accommodation requires significant difficulty or expense.¹² While it would not be a great expense to use a flexible work schedule for Sally, it would be a "significant difficulty" to accommodate her in the operating room if stress contributes to the occurrence of seizures or emotional instability as part of a fear of having a seizure.

Employers will not be required to make wholesale changes in job functions or tasks nor must they lower quantity or quality standards.¹³ In Sally's case, if she is a surgery nurse, it would be nearly impossible to anticipate stress and provide for her dismissal from the operating room when the going gets tough. Nonetheless, professional medical corporations or physicians' offices that meet the statutory criterion as employers are required to reasonably accommodate employees with known handicaps throughout the employment relationship.¹⁴

Our scenario is one of an infinite number that may occur.

Book explains ADA

Employers interested in coping with and understanding the intricacies of the Americans with Disabilities Act (ADA) may find help through a new publication from the U.S. Chamber of Commerce. *What Business Must Know About the Americans With Disabilities Act* covers the employment and public access provisions of the law and offers recommendations on what employers must do in hiring, promoting, offering health care to and terminating a disabled person.

The guide also explains alterations that may be necessary to make facilities accessible, includes a *Directory of State Vocational Rehabilitation Offices* and answers the most commonly asked questions about the ADA.

The 80-page book is \$20 for U.S. Chamber members and \$33 for non-members. Bulk order discounts also are available. To order the book, write Publications Fulfillment, U.S. Chamber of Commerce, 1615 H St., N.W., Washington, D.C. 20062 or call 1-800-638-6582. □

There are no absolutes with this law; it was purposely designed to be open-ended.¹⁵ Consider the following tips, though they are by no means inclusive, as an initial guide to understanding and complying with the ADA:

1. If your employment practices or policies are written (e.g., in a handbook), insert a phrase that states people with disabilities will not be discriminated against.

2. Educate those in your office, including all partners or associates, about the act's coverage and liability.

3. Review your written or other established practices or policies, including medical, accident and life insurance policies and other benefits such as retirement and profit-sharing, to determine if they discriminate against disabled people.

4. Delete all questions or re-

quests for information on your employment application forms that are designed to learn if someone is disabled.

5. If your office offers employment on the condition that an applicant successfully complete a medical examination, you must adopt the following procedures: a) the exam must be job-related and a business necessity, e.g., lifting 50 pounds to determine if a person can move an immobile patient; b) the exam may be given only after the disabled applicant has been given the job; c) the job offer can be made pending the outcome of the exam only if all other applicants are given the same exam; and d) all information from such an exam must be kept confidential and maintained in separate files.¹⁶

6. The law prohibits employers from making inquiries regard-

ing an applicant's disability or, if the disability is known, about the severity of the disability. However, employers can ask if job applicants or existing employees seeking a transfer or promotion who have a disability are able to perform the actual functions of the job, e.g., "Is there any reason you cannot perform any and all job related tasks?"¹⁷

7. Make sure your practices or policies do not limit, segregate or classify job applicants or employees on the basis of disability.

8. Determine whether job requirements include factors or criteria that discriminate unless it can be shown they are job-related and a business necessity.

9. A written job description will be considered evidence about what an employer believes is essential to performing work, so prepare one for all jobs.

10. Determine whether your facilities, such as hallways, offices, exam rooms and lunch rooms, are accessible to and can be used by disabled employees.

11. Draft a written policy for reasonable accommodation and

list the ways it may be accomplished or implemented as well as what kinds of accommodation will, in your opinion, cause an undue hardship to your practice. For instance, massive structural changes to existing facilities could be considered an undue hardship in some circumstances.

12. If you are unsure of the law's application in a given situation, consult an attorney or contact the offices of the Equal Employment Opportunity Commission in Indianapolis and request a copy of the agency's Final Guidelines, which detail the federal government's interpretation of the ADA. The guidelines also provide several examples designed to assist employers in complying with the law.

The Equal Employment Opportunity Commission, the federal watchdog agency that will administer and enforce the ADA, announced earlier this year that it anticipates 12,000 to 15,000 discrimination charges will be filed with the agency next year.¹⁹ This number probably is a very conservative estimate. As a result, all

employers subject to this new law should be preparing for its ramifications now, not next year when it becomes effective. □

The author is an attorney practicing labor and employment law on behalf of management with Beers, Mallers, Backs & Salin in Fort Wayne.

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2. Id. at §2(b).
3. Id. at §102(a).
4. Id. at §107(a).
5. Id. at §2(a)(1).
6. Id. at §3(2).
7. Id. at §101(8).
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10. Id. at §103(b).
11. Id. at §101(9).
12. Id. at §101(10).
13. Id. at §103(a).
14. Id. at §101(9).
15. Id. at §3(2).
16. 42 USC §12102(c).
17. Id. at 102(c)(4)(B).
18. 136 Cong. Rec. H2469-70 (May 17, 1990).
19. Daily Labor Report No. 40 (BNA) (Feb. 28, 1991).



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Digest of health and medical laws

1991 Indiana General Assembly

The 1991 sessions of the Indiana General Assembly will undoubtedly go down in legislative history. The first regular session adjourned at the end of April without a budget bill and without a legislative redistricting bill signed into law. Lack of compromise on these two important issues resulted in the legislative encores that lasted for two additional sessions, referred to as special sessions. Final adjournment did not occur until June 14.

The inability to compromise and the historical significance of this year's sessions are attributed to many factors. One reason is that neither political party had complete control of the Statehouse. The results of the 1990 election cycle put the Democrats in charge of the House for the first time in several years with a 52-48 majority. Meanwhile, the Senate retained slim Republican domination with a narrow 26-24 majority. Adding to the historical significance, the delay of the two special sessions made this the longest session on record.

Despite the political difficulties of the session, legislators managed to introduce 1,675 pieces of legislation. Philosophical differences between House and Senate leadership kept many of these bills from becoming law, while time crunches (a problem in every legislative session) effectively prevented success for many other bills.

This digest contains the most up-to-date information about new laws that may affect your practice. This year's digest summarizes 55 newly created laws, referred to as enrolled acts. The document is only a brief highlight of the health related changes in Indiana law. The acts' effective dates are included so you know precisely when the new laws will affect you. An index is included at the end of the document so you can locate bills of interest.

If you have any questions or comments, call the ISMA Government Relations staff at 1-800-969-7545 or (317) 261-2060.

Michael D. Abrams
Director of Government Relations

Louis Belch
Legislative assistant

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House enrolled acts

HEA 1001

- Requires that prescriptions filled for Medicaid and Medicare patients be filled with the generic substitute unless the physician stipulates in writing "brand medically necessary";
- allows Indiana residents to receive medical services in Chicago under the Medicaid program but stipulates that prior authorization be obtained to determine that the services are medically necessary, not available in the recipient's immediate area and would cause an undue hardship if the services were provided in Indiana;
- establishes a long-term care legislative study committee to study the following: Medicaid reimbursement for long-term health facilities, certificates of need and other long-term health issues determined relevant by the committee;
- continues the certificate of need process for long-term health facilities until July 1, 1993, (these four sections became effective July 1, 1991);
- allots money from the Build Indiana Fund to the following projects: Methodist Hospital State Poison Center, Indianapolis Midtown Community Mental Health Center and repair of the Indianapolis Pathology Building (the Indiana Medical History Museum);
- allows the state to establish exclusive contracts with providers offering the following medically related products and services: prescription drugs, physical therapy and therapeutic services, laboratory and x-ray services, eyeglasses and prosthetic devices, medical equipment and supplies and transportation services;
- requires all Indiana school corporations to enroll in the Medicaid program by July 1, 1992, to be reimbursed by Medicaid for any services currently being provided by the school corporation but that are reimbursed by Medicaid (these three sections became effective upon passage).

HEA 1060

- Provides that a policy of accident and sickness insurance may not exclude coverage for health care services provided to an insured on the grounds that the insured individual was subject to lawful detention by a county sheriff when the services were provided.
- Effective on all insurance policies or contracts issued or renewed after June 30, 1991.

HEA 1121

- Requires the board of health to maintain a toll-free telephone line to provide information on services for children with long-term health care needs;

- provides that this service must be made available to families, health care providers, government employees, educators and other entities that provide services to children with long-term health care needs.
- Effective July 1, 1991.

HEA 1273

- Requires dental hygienist applicants to be graduates from schools accredited by the American Dental Association;
- permits dental hygienists to perform preventive services, screenings and referrals without supervision in certain public health settings (these two sections became effective July 1, 1991);
- establishes a procedure for reinstating a license to practice either dental hygiene or dentistry if the license has been invalid for more than three years (this section became effective upon passage);
- requires dental hygienists to earn 14 hours of continuing education (CE) every two years and dentists to earn 20 hours of CE every two years;
- authorizes the Indiana State Board of Dental Examiners to manage the CE program;
- provides for random audits and penalties to ensure compliance (these three sections became effective July 1, 1991).

HEA 1296

- Updates the definition of autism to reflect the most recent definition published by the American Psychiatric Association.
- Effective July 1, 1991.

HEA 1338

- Requires the Bureau of Motor Vehicles (BMV) to make available a brochure that specifically addresses anatomical gifts;
- requires the BMV to orally ask every driver's license applicant if they wish to be an organ donor;
- allows the BMV to charge a fee to cover the cost of providing anatomical gift cards;
- allows an individual who is younger than 18 years of age to make an anatomical gift with the written consent of the individual's parent or guardian;
- requires each anatomical gift card to be signed in the presence of two witnesses;
- requires the BMV to make available employees to serve as witnesses;
- prohibits the parent or guardian of an individual younger than 18 from serving as a witness for the individual;
- provides that an individual who is at least 18 years of age and who makes an anatomical gift may elect to make the gift irrevocable by anyone except the individual or a guardian appointed by

the individual if the individual becomes incapacitated;

- provides that the state and any health care provider are not liable for damages alleged to have occurred as a result of an individual making an anatomical gift.
- Effective July 1, 1991.

HEA 1351

- Expands the definition of "health care provider" in the medical malpractice law to include a person licensed or authorized to provide services as an ambulance service, a paramedic or an emergency medical technician.
- Effective July 1, 1991.

HEA 1391

- Mandates day care centers, child care institutions and children's homes to have a person who is annually certified in pediatric cardiopulmonary resuscitation and pediatric airway obstruction on duty whenever children are being cared for.
- Effective Sept. 1, 1991.

HEA 1439

- Prohibits an employer from requiring, as a condition of employment, that an employee or prospective employee refrain from using tobacco outside the workplace;
- excludes church-related employers;
- allows employees or prospective employees to bring civil actions against an employer for violating this law.
- Effective July 1, 1991.

HEA 1476

- Requires a hearing aid dealer certificate applicant of registration to have a high school diploma or a high school equivalency certificate;
- requires the the completion of 20 hours of CE courses before renewing a hearing aid dealer certificate of registration.
- Effective for registration applications or renewals submitted after June 29, 1992.

HEA 1517

- Authorizes the worker's compensation board to establish a list of independent medical examiners who will be responsible for solving disputes between parties with regard to medical treatments and statuses;
- protects injured workers from claims by medical providers for the cost of care that is administered in a worker's compensation claim;
- establishes the employer and the employer's insurance company as the parties responsible for the cost of the necessary medical treatment;

- requires the worker's compensation board to make final determinations regarding the responsibility for payment of medical treatment.
- Effective July 1, 1991.

HEA 1521

- Allows emergency medical technicians to administer nonvisualized airways;
- defines "first responder" in the emergency medical care statute and authorizes the emergency medical services commission to: develop training and certification standards for first responders; require certification of first responders; and develop reciprocal certification training standards for individuals who have received medical training in the armed forces;
- provides that the emergency medical services statute and the rules issued under the statute do not authorize transporting an individual who objects to medical treatment on religious grounds;
- provides that volunteer fire companies and volunteer firefighters are not required to be certified under the emergency medical services statute to engage in extrication or rescue services;
- authorizes the emergency medical services commission to sponsor an annual statewide emergency medical services conference to provide continuing education to people providing emergency medical services.
- Effective July 1, 1991.

HEA 1566

- Requires the department of insurance to develop a model Medicare supplement policy including standard benefits;
- requires Medicare supplement policies issued in Indiana to be based on the model policy adopted by the department of insurance.
- Effective Jan. 1, 1992.

HEA 1603

- Changes references to the state civil defense department to the state emergency management agency. Requires each county civil defense advisory council to have seven members with specific qualifications. Allows a council the option to appoint any number of additional members. Requires a council to meet quarterly.
- Effective July 1, 1991.

HEA 1608

- Provides for the establishment of a not-for-profit corporation named the Indiana Telephone Relay Access Corporation for the Hearing and Speech Impaired (InTRAC) to establish, implement and administer a statewide dual party relay services system for hearing and speech impaired people;

- requires local exchange telephone companies to impose a monthly surcharge on its customers' residential and business lines to fund the dual party services system.
- Effective upon passage.

HEA 1648

- Eliminates an automatic exemption for "grandfathered" radiation technologists from licensure;
- allows the board of health to establish a fee for radiation technologist licenses;
- expands the board of health's rule-making authority regarding the use of radiation (these sections became effective July 1, 1991);
- allows the board of health to charge a fee equal to the actual cost of testing drinking water that is sold to the public (this section became effective Jan. 1, 1992).

HEA 1672

- Renames the minority or special education teacher scholarship program as the minority teacher or special education services fund;
- includes as eligible under the fund individuals who are pursuing a course of study that would enable the individual, upon graduation, to be certified to practice occupational therapy or certified to practice physical therapy in accredited Indiana schools, in vocational rehabilitation centers, or in community mental retardation or other developmental disabilities centers;
- continues to place the priority of scholarships awarded under the fund to minority teacher candidates;
- requires occupational or physical therapists to agree to practice occupational or physical therapy in any of the eligible places of employment for at least three of the first five years following that person's certification as an occupational therapist or licensure as a physical therapist.
- Effective July 1, 1991.

HEA 1690

- Requires a county to pay for the health care (minus any insurance or worker's compensation benefits) of a county police officer or jail employee who suffers an injury or who contracts an illness while performing duties as an employee.
- Effective only for injuries and illnesses that occur after June 30, 1991.

HEA 1698

- Allows the board of health to issue civil penalties against a vendor for violation of rules governing the Women, Infants and Children nutritional program (WIC);

- permits a maternal and child health clinic to apply for a grant from the medical nursing grant fund;
- repeals a provision that requires the board of health to notify the county fiscal body of matters under the medical nursing grant fund;
- provides immunity from civil liability to people who make gifts of food items to charitable entities after June 30, 1991;
- allows the board of health to test anonymous waste blood specimens for research without obtaining consent from the person from whom the specimen was obtained;
- authorizes the release of medical information to the extent necessary to enforce the criminal law forbidding the deliberate donation of contaminated blood.
- Effective July 1, 1991.

HEA 1731

- Requires either the state or local board of health, when notified by a physician of a patient who is HIV positive, to notify people who may be at risk of contracting the disease;
- provides that the board of health shall establish a confidential registry of people requesting contact tracing for communicable diseases;
- allows the board of health to test anonymous waste blood specimens for research without obtaining consent from the person from whom the specimen was obtained;
- authorizes the release of medical information to the extent necessary to enforce the criminal law forbidding the deliberate donation of contaminated blood;
- requires the board of health to develop a registry for tracking and follow-up of all newborns under the newborn screening program (these five sections became effective July 1, 1991);
- provides that a residential facility for the developmentally disabled is a permitted residential use that may not be disallowed by a zoning ordinance;
- changes the definition of visual impairment with regard to Indiana's blind registry;
- requires the board of health to prepare and provide materials concerning reporting requirements under the blind registry and services to people who are blind (these three sections became effective Jan. 1, 1992);
- specifies that all cases of malignant cancer that are diagnosed or treated in Indiana must be reported to the cancer registry (this section became effective Sept. 1, 1991);
- removes from the current definition of "birth problem" for reporting under the birth problems registry an Apgar score between three and five;
- requires providers to report confirmed cases of

birth problems to the birth registry not later than 60 days after the birth;

- requires the board of health to provide educational programs for providers regarding birth problems registry reporting requirements (these three sections became effective upon passage).

HEA 1732

- Allows the board of health to issue emergency rules;
- allows the health commissioner, in an individual capacity, to engage in the private practice of medicine;
- requires the commissioner in the performance of his official duties to comply with ethics and conflict of interest statutes;
- defines a "local health department" as a department organized by a county or city executive with a board, a health officer and an operational staff to provide health services to a county, city or multiple county unit;
- provides that a local health department operates as an agency of local government;
- staggers the terms for members of local boards of health;
- requires the county executive to appoint the members of the local board of health;
- requires the local board of health to provide the board appointing authority with a list of five individuals, at least one of whom must be a physician, whenever a board vacancy occurs;
- provides that a local health officer is to be appointed by the local board of health and certified by the county executive;
- establishes conditions under which a local health officer may be removed, including the condition that only the board that appointed the health officer may remove him/her;
- allows a local health department board to adopt personnel policies;
- allows the board of health to certify health care facilities under Medicaid;
- requires the board of health's evaluation committee to study the statutory and functional relationship of the board of health and local government functions.
- Effective upon passage.

HEA 1786

- Provides that a volunteer guardian ad litem who represents a child in need of services or a child in custody proceedings must complete the same court approved training program that is required for a court appointed special advocate;
- provides that when the child protection service is investigating a report of child abuse and the child in the investigation is admitted to a hospital, the

hospital may not release the child until the hospital receives authorization from a court;

- appropriates funds to the division of state court administration to carry out court appointed special service and guardian ad litem programs;
- establishes a child abuse prevention and treatment fee of \$50 to be paid by people who commit certain violent crimes against children;
- establishes the domestic violence prevention and treatment fee of \$50 to be paid by people who commit certain violent crimes against their spouse or former spouse;
- allows the state treasurer to invest funds not currently needed to meet obligations of the child abuse fund and the domestic violence prevention and treatment fund in the same manner as other invested public funds.
- Effective July 1, 1991.

HEA 1789

- Redefines "developmental disability" as "a severe, chronic disability of a person that is attributable to a mental impairment or a combination of mental and physical impairments (other than the sole diagnosis of mental illness) that manifests before the individual reaches 22 years of age, is likely to continue indefinitely, reflects the person's need for a combination and sequence of special, interdisciplinary or generic care, treatment or other services that are of lifelong or extended duration and are individually planned and coordinated and that results in substantial limitations in at least three of the following: self-care, receptive and expressive language, learning, mobility, self-direction, capacity for independent living and economic self-sufficiency" (this section becomes effective July 1, 1993);
- requires the governor's planning council to establish a transition mechanism to assist individuals whose eligibility for services or programs might be affected by the change in definition;
- authorizes the state personnel director to waive minimum qualifications and examinations for people with disabilities who possess the required knowledge, skill and ability to perform the essential functions of a merit position in state government, with or without reasonable accommodation;
- establishes a specific procedure for enabling students in special education to access ongoing adult services upon the students' exit from the school program (these three sections became effective July 1, 1991);
- transfers responsibility for issuing handicapped parking permits from the department of human services to the Bureau of Motor Vehicles (this section becomes effective Jan. 1, 1992).

HEA 1793

- Removes a provision directing the department of human services to use federal social services block grants for services that are not reimbursable under the medical assistance program;
- removes preferences for home energy assistance to low-income elderly people and people employed for less than 180 days a year;
- allows a state agency that has a contract with another agency to provide advanced payments of up to one-half of the contract amount;
- changes references for the department of human services from "hearing impaired" to "hard of hearing."
- Effective July 1, 1991.

HEA 1799

- Establishes the commission for a drug-free Indiana;
- provides that the purpose of the commission is to improve the coordination of alcohol and other drug abuse efforts at the state and local levels to eliminate duplication of anti-drug efforts while ensuring comprehensive programs are available throughout the state;
- provides that membership for the commission shall be comprised of 20 people who have distinguished themselves in their fields and who have experience or an interest in attempting to eliminate alcohol and other drug abuse in Indiana and further requires at least one member of the commission to have experience in medicine.
- Effective July 1, 1991.

HEA 1837

- Provides a method to increase payments under Medicaid to hospitals, state mental health institutions and private psychiatric institutions that serve a disproportionate share of indigent people;
- allows the department of public welfare to place an employee in disproportionate share hospitals to determine eligibility and process claims for the Medicaid and hospital care for the indigent programs (these two sections became effective July 1, 1991);
- requires the department of public welfare to amend the state plan for medical assistance and secure federal approval before implementing the disproportionate share program (this section effective upon passage).

HEA 1855

- Increases the minimum period of time of suspension or denial of a license or learner's permit for a juvenile who commits a delinquent act involving controlled or counterfeit substances to six months;
- provides that the operator's license and the motor

vehicle registration of an adult who commits any controlled substance or counterfeit substance offense must be suspended for a minimum of six months;

- provides that an adult who is convicted of a controlled or counterfeit substance offense and who does not hold an operator's license or a learner's permit may not obtain a license or permit for six months.
- Effective July 1, 1991.

HEA 1883

- Requires a court to order the Bureau of Motor Vehicles to issue a hardship license (restricted driving permit) to a person whose license has been suspended for driving while intoxicated (DWI) if: The offense did not result in death or serious bodily injury; the driving that resulted in the suspension was not in connection with the person's work; the person has no prior DWI convictions; and the person participates in a rehabilitation program certified by the addiction services division of the department of mental health;
- specifies that the restricted driving privileges may not take effect until the person's license has been suspended for at least 30 days;
- requires the Bureau of Motor Vehicles to remove from a person's official driving record any record of the person's license suspension when a driving while intoxicated action is terminated in favor of the person.
- Effective July 1, 1991.

HEA 1889

- Requires a county hospital board to submit a list of three qualified candidates to the appointing authority when there is a vacancy on the board;
- allows the appointing authority to choose one of those candidates when filling a vacancy on the hospital board;
- repeals a provision concerning the appointment of physicians to a county hospital medical staff;
- allows a county hospital board member to receive group health and life insurance benefits and clarifies what constitutes board member compensation;
- eliminates inconsistency for county hospital capital and operating loans;
- permits a county hospital to transfer real property to a related or controlled entity for the purpose of constructing a building for the county hospital;
- grants greater authority to a city-county hospital when making repairs and improvements to the hospital;
- allows the board of trustees of the health and hospital corporation to obtain a loan for hospital expenses and secure the loan with accounts re-

- ceivable or other security in hospital funds.
- Effective July 1, 1991.

HEA 1897

- Continues the city of Lafayette's part-time health department until Jan. 1, 1993.
- Effective July 1, 1991.

HEA 1915

- Adds a representative from the Indiana Council of Community Mental Health Centers and a representative from the Indiana Psychological Association to the Department of Public Welfare (DPW) Medicaid Advisory Committee;
- provides a payment increase for hospitals serving a significant disproportionate share of indigent patients;
- contains provisions for the DPW to apply for federal funds for a demonstration project for the county hospital care for the indigent program (these three sections became effective upon passage);
- requires the DPW to conduct a study on the standard of need for dependent children and report their findings by Nov. 1, 1992, (this section effective July 1, 1991).

HEA 1998

- Changes the numerical requirements regarding the professional composition of a board of managers of a county health care center.
- Effective July 1, 1991.

HEA 2038

- Allows the executive director of the health professions bureau to provide legal advice to a licensing board;
- allows a licensing board to hold a nonpublic executive session to prepare and score licensing examinations;
- allows a licensing board to employ organizations to help with licensing examinations and to enter into a contract with a testing company to set the standards for review of the examination;
- establishes the procedure for a court review of the examination documents;
- changes the name of the board of registration for professional sanitarians to the board of environmental health specialists;
- expands licensing boards' authority to assess fines against licensees;
- transfers from the president of the medical licensing board to the governor the authority to appoint the membership of the respiratory care committee;
- specifies expiration dates for certain licenses and certificates issued for health related professions (not physicians);

- changes application procedures for certain health related professions (not physicians);
- adds anabolic steroid as a Schedule III controlled substance;
- allows an individual who participated in Operation Desert Storm and who is required to renew a professional or occupational license to apply for a renewal license not later than 180 days after the individual returns to Indiana;
- exempts Operation Desert Storm participants from any licensure continuing education requirements for 180 days after completion of the person's military activities;
- creates an 11-member board of funeral and cemetery service to replace the board of funeral service and to govern seller registration and administer a consumer protection fund.
- Effective July 1, 1991.

Senate enrolled acts

SEA 18

- Provides an exception from licensure to practice nursing for people who act solely in accordance with the practice and principles of the Church of Christ Scientist;
- provides that a sanitarium, nursing home or rest home conducted in accordance with the practice and principles of the Church of Christ Scientist does not have to comply with any rule adopted by the Indiana state board of nursing, except for sanitation and safety rules and rules regarding necessary physical equipment.
- Effective July 1, 1991.

SEA 30

- Requires the department of public welfare to seek approval to change the state Medicaid plan to allow the waiver of parental income and resources for certain children who are eligible for Medicaid and who are at risk of being institutionalized;
- requires the department of public welfare to apply for a waiver to provide for home and community based services to children who are Medicaid eligible and who are at risk of being institutionalized;
- requires the budget agency to annually estimate the cost savings to the department of mental health as a result of children receiving Medicaid assistance from the above waivers and to transfer that amount from the state mental health budget to the Medicaid budget.
- Effective July 1, 1991.

SEA 31

- Expands the current statutory definition of "birth problems";
- continues the birth problems registry until July 1, 1993;
- requires physicians and hospitals to report birth problems to the registry no later than 60 days after the birth;
- requires the board of health to provide physicians and hospitals with the necessary "birth problems" reporting forms;
- requires the board of health to report to the legislative council by November 1992 regarding possible solutions to decrease the number of birth problems in the state.
- Effective upon passage.

SEA 237

- Repeals the existing power of attorney statute and creates a new article concerning powers of attorney;
- specifies the duties, liabilities and presumptions concerning powers of attorney including the ability to make health care decisions;
- specifies that the duties of an attorney in fact to make health care decisions for an individual encompass the ability to decide whether or not to withdraw life-sustaining procedures including nutrition and hydration;
- clarifies that nothing in this law may be construed as allowing euthanasia;
- cross-references Indiana's living will and health care consent laws.
- This law affects all powers of attorney created after July 1, 1991.

SEA 281

- Allows optometrists to prescribe all legend drugs (excluding controlled substances) used within the scope of their practice until July 1, 1992;
- creates the Indiana Optometric Legend Drug Prescription Advisory Committee, comprised of two optometrists, one physician, one pharmacist and one pharmacologist to determine which legend drugs optometrists may prescribe;
- empowers the committee to determine which drugs optometrists may prescribe "dependently," meaning that the optometrist must notify or consult with the patient's physician regarding drugs that have been prescribed by the optometrist, and those drugs that may be prescribed by the optometrist "independently," without having to notify the patient's physician which drugs have been prescribed;
- requires the committee to determine which drugs optometrists must notify physicians they have prescribed and which drugs optometrists must

consult physicians about before the optometrist prescribes them;

- allows optometrists to prescribe "dependent" drugs without consulting with or notifying a physician if a patient indicates that he/she has no physician and the optometrist notes that in the patient's record;
- requires optometrists to be certified by the Indiana Board of Pharmacy to administer, dispense or prescribe drugs after July 1, 1992;
- requires the committee to establish continuing education requirements for optometrists who wish to renew their prescribing certificate;
- makes it a class A misdemeanor to violate this law;
- allows a pharmacy to remain open to the public when a pharmacist is not on duty if all legend drugs and other merchandise are secured either by a lock or other method approved by the pharmacy board (these nine sections became effective July 1, 1991);
- specifies the types of pharmacy permits that may be issued by the pharmacy board (this section becomes effective Jan. 1, 1992).

SEA 283

- Raises the maximum amount of nonmedical assistance paid for a person receiving residential care assistance to 52%, from the current level of 50%, of the rate paid to intermediate care facilities;
- requires county homes and residential care facilities that receive state funds to file operation cost reports with the department of public welfare;
- requires the department of public welfare to review the reports and submit modified reimbursement rates to the budget agency.
- Effective July 1, 1991.

SEA 295

- Requires that insurers offer to provide coverage for breast cancer screening mammography in any accident and sickness insurance policy that the insurer offers in Indiana;
- establishes standard coverage and reimbursement requirements for mammography procedures;
- requires the board of health to adopt rules concerning the quality of mammographies;
- amends a law enacted in 1990 such that an insurer cannot be mandated to provide any new types of health care coverage unless the mandate applies equally to employee welfare benefit plans established in the federal Employee Retirement Income Security Act. (This federal act allows employers to self insure and further allows them to be exempt from having to provide any state mandated health care benefits.)
- This act applies to insurance policies that are is-

sued or renewed after June 30, 1991.

SEA 405

- Creates the division of child care services within the department of human services;
- transfers child care licensing responsibilities from the state department of public welfare and the board of health to the division of child care services;
- designates the department of human services as the state agency responsible for administering funds under Title IV-A of the Social Security Act and the federal Child Care Development Block Grant;
- establishes the comprehensive early childhood grant program to provide financial assistance and other incentives to early childhood program providers to implement, coordinate and monitor early childhood programs.
- Effective July 1, 1991.

SEA 460

- Allows the board of health to notify the administrator of a hospital before an annual licensure inspection of the hospital;
- specifies that the executive board of the board of health rather than the health facility council has rule waiver authority for a hospital based long-term care facility provided that the waiver does not adversely affect the facility's residents.
- Effective July 1, 1991.

SEA 466

- Requires the department of insurance under the Indiana long-term care program to provide counseling services to people who are planning their long-term care needs;
- requires all state agencies when determining an individual's eligibility for long-term care assistance, including medical assistance, to increase the amount of assets that the individual may retain by one dollar for each dollar of benefits paid out by the individual's long-term care insurance policy;
- requires the department of insurance to adopt rules on marketing practices, agent continuing education, reporting practices and penalties with regard to long-term care insurance;
- restricts an insurer's latitude to exclude coverage under a long-term care policy due to a pre-existing condition;
- requires the insurer at the time of initial solicitation to provide all prospective applicants with an outline of the coverage provided by a long-term care policy and a summary of the coverages provided when the policy is purchased;
- establishes rules regarding the payment of sales commissions for long-term care insurance;

- authorizes the insurance commissioner to impose a civil penalty upon insurers or agents who violate these laws.
- Effective July 1, 1991.

SEA 549

- Licenses wholesale legend drug distributors;
- requires the Indiana Board of Pharmacy to adopt rules in compliance with federal guidelines concerning the licensure of drug distributors;
- establishes qualifications for licensure, penalties and sanctions;
- allows for licensure reciprocity with other states.
- Effective upon passage.

SEA 566

- Prohibits a nursing home from transferring or discharging a resident except in the interest of the welfare and safety of the transferring resident or other residents or if the resident has after reasonable and appropriate notice failed to pay the facility for services rendered;
- requires notification of the impending transfer be made to interested parties;
- establishes an appeal process;
- calls for the board of health to adopt rules concerning the transfer process;
- prohibits a facility from involuntarily transferring a resident within a facility unless the resident is given two days notice.
- Effective upon passage.

SEA 617

- Reorganizes health and human service programs provided by the following state agencies: department of public welfare; department of mental health; department of human services;
- renames the department of public welfare the "division of family and children," the department of mental health the "division of mental health" and the department of human services the "division of aging and rehabilitative services";
- excludes the board of health from the reorganization, but does rename the board the "department of health" (these three sections become effective Jan. 1, 1992);
- establishes the office of the secretary of family and social services who will be responsible for coordinating family and social service programs delivered by the state agencies;
- requires the secretary and the commissioner of the department of health to cooperate in the coordination of family and social service programs with related programs offered by the department of health;
- establishes the following four offices within the office of the secretary to assist the secretary: the

office of administration; the office of information technology services; the office of Medicaid policy and planning; and the office of planning, innovation and federal relations;

- transfers the responsibility for the Medicaid program from the state department of public welfare to the office of Medicaid policy and planning;
- creates the Family and Social Services Advisory Commission to advise the secretary on policy, comprehensive planning and coordination of family and social services programs;
- establishes an advisory council for each of the three new divisions;
- provides that the newly established administrative structure and the newly organized divisions expire July 1, 1995;
- requires that an audit of the administrative structure and the divisions occur before July 1, 1995, to determine whether they should expire after July 1, 1995, or if they should continue (these eight sections became effective July 1, 1991);
- establishes a committee to study the long-term needs of people with developmental disabilities and mental illness;
- requires membership of the committee to include: a) a labor union representative; b) a consumer representative of the mentally ill population; c) a consumer representative of the developmentally disabled population; d) a parent representative of the mentally ill population; e) a parent representative of the developmentally disabled population; f) a provider representative of the mentally ill population; g) a provider representative of the developmentally disabled population; h) a representative of state hospital administration; i) an advocate for people with mental illness; and j) an advocate for people with developmental disabilities;
- charges this committee to study the cost of operating state hospitals, new uses for Medicaid funding, how individuals access the health care system, the use of cooperative agreements between state agencies and community providers and issues surrounding union workers;
- requires the committee to report its findings to the governor by Nov. 2, 1993 (these four sections became effective June 1, 1991).

1991 legislative morgue

House Bill 1090

Authors: Villalpando, Gregg, Alderman and Cottey

Digest: The "wrongful death" bill would have provided that certain relatives regardless of dependency of a decedent may recover certain damages in a wrongful death action. Also provided that

these relatives may recover damages for grief and loss of society, companionship, guidance, love and/or affection.

House Bill 1109

Authors: Donaldson and Brown

Digest: Prohibited smoking in all areas of hospitals and health facilities. (The Joint Commission on Accreditation of Health Organizations will prohibit smoking in facilities beginning January 1992.)

House Bill 1131

Author: Hayes

Digest: Would have allowed a person to decide whether or not they want to exclude nutrition and hydration as a life-prolonging procedure when preparing a living will.

House Bill 1203

Authors: Kearns, R. Hayes, Kruzan and Keeler

Digest: In its original form, this bill would have prohibited the solicitation of a person younger than 18 years of age for the purpose of providing legal or medical services.

House Bill 1326

Authors: Kearns, Brown, Fox and Bayliff

Digest: Attempted to establish guidelines for drug testing in the workplace. Sought to prohibit random drug testing and drug testing of applicants.

House Bill 1348

Author: Day

Digest: Sought to prohibit corporal punishment in public schools.

House Bill 1441

Author: Smith, V.

Digest: Would have provided that an adult who permits a child to obtain possession or control of a firearm on the premises of or in the adult's property or vehicle commits a class A misdemeanor. Enhanced the offense to a class D felony if the child's possession or control of the firearm resulted in serious bodily injury to or the death of any individual.

House Bill 1503

Authors: Kromkowski and Mock

Digest: Would have allowed employers to permit injured employees to be treated by a chiropractor under the workers compensation law.

House Bill 1613

Authors: Nelson and Grubb

Digest: Would have allowed a physician to test for

HIV without the patient's specific informed consent.

House Bill 1824

Author: Carmichael

Digest: Sought to prohibit discrimination against a person who has an HIV infection or is perceived to have an HIV infection in the areas of employment, health care and health insurance. Provided that a person who discriminated against an individual with HIV can be fined up to \$10,000 a day. Further provided that physicians must provide health care to a person with HIV unless the physician does not have the skill or training to provide effective care.

House Bill 1835

Author: Bayliff

Digest: Sought to differentiate, for the purposes of the medical malpractice law, between medical malpractice and medical negligence. Defined medical negligence as the failure to do what a reasonably careful and prudent health care provider would have done under the same or similar circumstances. Defined medical malpractice as a course of action showing an actual or deliberate intention to cause injury to the patient or an utter indifference to or a conscious disregard for the safety of the patient. Provided that a settlement or entry of judgment for negligence may not be considered as a matter for consideration by the appropriate professional board and may not be considered as having a bearing on the health care provider's fitness to practice.

House Bill 1898

Author: Brown

Digest: Would have created a universal system of health insurance to provide primary coverage to

every resident in Indiana. Consequently, would have made health insurance contracts entered into after Dec. 31, 1993, unenforceable.

House Bill 1997

Authors: Dvorak and Bayliff

Digest: Would have allowed a claimant who has filed a malpractice claim with the department of insurance to also file an action against the provider in court before the medical review panel had rendered its opinion on the claim.

Senate Bill 166

Authors: Wyss and Maidenberg

Digest: Sought to reduce from 0.10% to 0.08% the percentage of alcohol by weight in a person's blood that is necessary to constitute prima facie evidence of intoxication in a prosecution for operating a motor vehicle or watercraft while intoxicated.

Senate Bill 235

Authors: Landske, Lewis, Gard, Doll, Antich, Breaux, Server and Soards

Digest: Sought to amend the definition of "life-prolonging procedure" regarding living wills to include nutrition and hydration.

Senate Bill 257

Author: Hellmann

Digest: Attempted to apply the law on prejudgment interest to awards from the Patients Compensation Fund.

Senate Bill 404

Authors: Sinks and Gery

Digest: Provided for certification of professional counselors to diagnose and treat mental disorders.

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■ the wounded healer

Continuing care contacts

Kete Cockrell, M.D.
Plainfield, Ind.

Written contracts between a physician recovering from an impairing disease and an established physician assistance program are used to support and document recovery. Treatment contracts designed to assure completion of adequate diagnostic assessment and treatment are sometimes executed before the physician enters treatment. However, continuing care contracts, as the name implies, are made after a physician has finished the initial phase of treatment.

Some physician assistance committees require minimal diagnostic procedures and/or treatment before entering into a contractual agreement with a physician. Sometimes an outpatient assessment by a member of the committee is the only prerequisite to contracting. Proponents of this approach believe that identifying the impaired physician and "setting him up" to be caught when he fails to satisfactorily progress in recovery justifies this approach.

This approach forces committee members to function as interveners, diagnosticians, therapists, monitors and advocates. The ISMA Physician Assistance Program (PAP) experience indicates that it is impossible to be an effective monitor or advocate if one has been involved in the diagnosis or treatment process. Most state physician health programs have had experience similar to the ISMA's.

Implementing policies reflecting its experience, the ISMA PAP engages in pre-assessments and interventions. Making the physician and his family aware that he is exhibiting behavior suggesting

impairment is the first step in this process. Once an awareness has been achieved, a comprehensive diagnostic work-up is indicated to determine if a disease is responsible for his aberrant behavior. The physician is requested to immediately enter an ISMA PAP-approved facility for an inpatient assessment. Further, he agrees to comply with resulting treatment recommendations.

Requiring that assessment and treatment be completed at a center specializing in treating physicians enhances the physician's chances for recovery by at least 40%, as opposed to assessment and treatment at non-specialized centers. Referring the physician for assessment removes ISMA program personnel from the diagnosis and treatment process and alleviates the possibility of commission members or program personnel being accused of economic or other ulterior motives. Since someone else assumes the responsibility for diagnosis and treatment, the resentment felt by physicians, family members and associates toward these individuals is not directed at ISMA PAP personnel. Freed from this resentment, commission members and program personnel can support, monitor and advocate efficiently.

Once the physician has completed recommended treatment, he is eligible to enter a continuing care contractual agreement with the ISMA PAP. Contractual effectiveness is influenced by the accuracy of diagnosis and treatment; timeliness of execution; thoroughness of "standard clauses"; completeness of "individualized clauses"; and the amount of professionalism applied to monitoring activities.

A continuing contract cannot be developed without an accurate

diagnosis and continuing treatment recommendations from the primary treatment team. A reputable treatment program usually documents these in a written Continuing Care Plan that is furnished to the physician at the completion of treatment. With the physician's permission, a copy of this plan is forwarded to the ISMA PAP. Obviously, a physician suffering from a primary psychiatric impairment would not be required to attend Twelve Step meetings as part of his continued recovery. Conversely, a physician suffering from a primary chemical dependency impairment would not be required to see a psychiatrist for continued care. Urine drug screens would be mandatory for the chemically dependent but not the psychiatric patient. Without access to the Continuing Care Plan, there would be no medical justification for contract terms.

Accessing the Continuing Care Plan allows the ISMA PAP to enter into a contract with a physician as soon as treatment has been completed. The immediate post-treatment period, when physicians are attempting to re-enter the mainstream of life after spending a considerable period of time in a protected treatment environment, is a high-risk time for relapse. Entering into the ISMA PAP at the time of discharge from treatment frequently furnishes the physician with the extra support necessary to maintain recovery and complete the transition into mainstream living. Additionally, recovery monitoring must be uninterrupted and documented to facilitate credible advocacy.

Contractual terms explaining necessary recovery practices give the physician continued support assuring some protection from relapse. Terms should be medi-

■ the wounded healer

cally and/or legally indicated but not punitive or burdensome. Certain standard clauses should be included in all contracts.

Examples of standard clauses are: State the term of the contract (usually two years initially); renegotiate contract 90 days before expiration; admit impairing diagnosis; name a primary treating physician with permission for ISMA PAP personnel to discuss any prescribed medications with the physician before the recovering physician takes the medication; identify a monitoring physician in the recovering physician's geographical area; consent to produce urine (or other bodily fluids) on request of the ISMA PAP or other designated personnel within six hours of the request; be available through telephone or pager 24 hours a day to accept requests for urine drug screen and/or blood alcohol level unless prior notification has been given the ISMA PAP personnel; consent for the ISMA PAP to furnish the Indiana Medical Licensing Board, the Drug Enforcement Agency, hospital staffs or others all available documents if the recovering physician fails to progress satisfactorily in recovery; and all expenses relative to treatment and monitoring, including urine drug screens and blood alcohol levels, are the responsibility of the recovering physician.

In addition to the standard clauses, each contract will require special clauses usually suggested in the continuing care plan. Some examples of special clauses include: Identifying the number of Twelve Step and/or Caduceus meetings to be attended per week; receiving marital and group or individual counseling; limiting

DEA privileges; limiting number of hours per week the recovering physician can work or be on call; restricting type of practice; altering work environment, concerning such factors as drug samples and narcotic supplies; stating psychiatric consultation frequency and duration; residing in a half-way house for a period of time; and refraining from the practice of medicine for a period of time.

Regardless of how thorough and complete the standard and special clauses are formulated, the contract is ineffective unless monitoring practices are professionally executed. For example, urine screens cannot be performed randomly if the physician is not required to be available at all times unless he or she notifies ISMA PAP personnel before an absence. If the approved urine collection laboratory is not open after 5 p.m. or on weekends, the system is unsatisfactory. If the record indicates that for the last six months random urine screens have been done every Tuesday and Thursday, the system is inadequate. Reports of meeting attendance and therapy sessions required from the recovering physician must be received promptly and filed in the patient's permanent file. Failure to submit reports on time or incomplete reports require action by monitoring personnel. Failure to act negates contractual effectiveness and detracts from overall program credibility.

The ISMA PAP stresses that continuing care monitoring should be offered a recovering physician only after he has been thoroughly evaluated, diagnosed and treated by a center specializing in the treatment of physicians. Following these principles, a

physician's chances of recovery are about 40% greater than a physician treated by non-specialized centers or physicians not monitored by a physician assistance program after treatment.

If ISMA PAP personnel intervene with a physician suspected of impairment and the physician refuses assessment and treatment, the statutes of Indiana require that the ISMA PAP report this person to the medical licensing board for further evaluation and possible action. Action by the licensing board frequently results in the physician's receiving appropriate treatment. Placing such an individual under contract as a set-up to catch him when he fails not only enables the sick physician to get sicker but compromises the credibility of all physician assistance programs and propagates accusations of a cover-up. Executing set-up contracts deprives the impaired physician of the opportunity to be properly diagnosed and treated.

The ISMA PAP has restricted its services to pre-assessment, intervention, monitoring and advocacy. Further involvement, including diagnosis and treatment, is counter-productive for the program, program personnel and participants.

Sample continuing care contracts are available from Candace Backer at the ISMA, (317) 261-2060 or 1-800-969-7545. We are available to assist in developing contract terms for individual cases at your request. □

The author is medical consultant to the ISMA Physician Assistance Program.

■ about the artist

Betty C. Boyle, whose work appears on this month's cover, has lived in Columbus, Ind., since she, her husband and the four youngest of their 10 children settled there in 1979. Her cover work is a watercolor print titled "Capitol City."

She is a native of New York, where she was a commercial artist five years before taking time out to raise a family. During those years, her interest in the fine arts developed, and she began exhibiting after she moved to the Chicago area. When her family moved to Indianapolis in 1968, she continued exhibiting and taught art classes when her youngest child started school. For

three years, she worked with the Metropolitan Arts Council of Indianapolis as a watercolorist.

She has won several awards, and her work has been displayed at numerous shows and exhibits in Florida, Illinois, Indiana, Kentucky, New Jersey, New York, Oklahoma and Washington, D.C. She is represented at Brown County (Ind.) Art Gallery; Arnold Gallery in Marblehead, Mass.; rental galleries of the Indianapolis Museum of Art, Fort Wayne Museum of Art, J.B. Speed Museum in Kentucky and other galleries in Indianapolis, Carmel and Columbus, Ind. Her studio, Grandview Lake Studio, is in Columbus.

Lincoln National Corp. of Fort Wayne commissioned Mrs. Boyle

to commemorate its sponsorship of the 1991 PGA Championship at Crooked Stick Golf Club in Carmel with a watercolor print of the sixth hole. The Ronald McDonald House in Indianapolis also commissioned her to do a piece, which she titled "City Rain."

Her works currently are displayed at several physicians' and dentists' office, the University Place Conference Center and the L.S. Ayres store at Lafayette Square, all in Indianapolis.

The cover print is available at the Indianapolis City Center and several Indianapolis area frame shops. □

■ drug names

Look-alike and sound-alike drug names

	METHICILLIN	MEZLOCILLIN
Category:	Antibiotic	Antibiotic
Brand name:	Staphcillin, Bristol	Mezlin, Miles Pharm.
Generic name:	Methicillin sodium	Mezlocillin sodium
Dosage forms:	Powder for injection	Powder for injection
	ANISTREPLASE	ALTEPLASE
Category:	Thrombolytic enzyme	Tissue plasminogen activator
Brand name:	Eminase, Beecham	Activase, Genentech
Generic name:	Anistreplase	Alteplase, recombinant
Dosage forms:	Powder, lyophilized	Lyophilized powder for injection

Benjamin Teplitsky, R. Ph.
Brooklyn, N.Y.

Look-alike and sound-alike drug names can be misinterpreted by a nurse reading doctors' orders or by a pharmacist compounding physicians' prescriptions.

Such misunderstandings can result in the administration of a drug not intended by the prescriber. Awareness of such look-alike and sound-alike drug names can reduce potential errors. □

■ letter to the editor

Effective July 1, 1991, I resigned my positions as director/curator of the Indiana Medical History Museum and medical research historian at the Indiana Historical Society to accept a position as the assistant director of marketing and communications at the Indiana University Center on Philanthropy. My decision to leave the museum was a difficult one. I leave with feelings of both happiness and sadness. I am happy to accept a position that will offer me tremendous potential for personal and professional growth. I am sad to leave the museum and my friends and acquaintances within the medical community.

For the past nine years, the position I held at the museum was shared with the Indiana Historical Society. The structure of the position allowed the Indiana Medical History Museum the opportunity to hire a professional museum curator. However, over the past several years, the museum has grown, making a full-time staff person necessary. With my resignation, the board of directors decided to hire a full-time director and retain a part-time assistant. This decision will allow the museum to be more accessible to the public. The institution is now open only two afternoons per week and by appointment.

With the support of the board of directors and the medical community, the museum has made tremendous progress. For many years, change (let alone progress) at the museum seemed imperceptible. Yet, laying the groundwork for an organization is a slow and often thankless task. In the last

two years, that groundwork has proven fruitful.

Until this past year, most open days at the museum were quiet. Occasionally, a scheduled group would tour the museum, but the drop-in visitor was rare indeed. Today, the situation is quite different. Wednesday and Friday afternoons are typically hectic at the museum as a small, yet steady stream of drop-in visitors tours the museum. The number of tour groups is up, too, and the demand for tours during the non-open hours has grown. These groups include medical students, nursing students, community groups and an ever-increasing number of school groups.

Many are lured to the museum by exhibits in the changing exhibit gallery. During their visit, they see not only the exhibits, but one of the most remarkable historical buildings in the nation. Visitors tell their friends what they saw, resulting in yet more visitors to the museum.

Press coverage of the facility has improved and increased. The museum was often viewed by the press as an oddity. Coverage frequently focused on the macabre. Today, the press views the organization as a legitimate museum. For the past three months, the museum's "Great Medical Discoveries" exhibit has been listed in *The Indianapolis Star's* "Let's Go" column.

The Indianapolis Visitors and Convention Bureau has taken special interest in the museum, promoting it to medical groups who have held meetings in the city. One travel writer recently told me that a bureau representative said if he visited one museum

in Indianapolis it should be the Indiana Medical History Museum. The press coverage is not just local. As noted in an earlier column in *INDIANA MEDICINE*, Martin Lipp in his book *Medical Landmarks USA* assessed the museum as being "quite simply without peer in the entire country."

The financial picture of the museum still needs improvement. Yet, private contributions have increased 50% over the previous years. The museum has received two major grants this past year. One, the Institute of Museum Services Grant, is the most competitive grant for museums. Museums that receive the grant have demonstrated excellence in all areas of museum operations.

The museum now has an assistant and a volunteer staff of 10. Nine years ago, the museum had one volunteer and could not seem to attract any more volunteers. The volunteer staff brings a variety of experience and expertise to the organization and has been invaluable in the museum's development. Most volunteers donate at least one morning or afternoon per week to the organization.

Much work still needs to be done. Yet, I leave the museum confident that the organization will hire an individual who will carry forward the mission of the museum to become a viable and dynamic educational institution within the community.

Katherine Mandusic McDonell
Indianapolis

Editor's note: Since this letter was written, the museum has hired Oren Cooley as the new director. He began his new job July 22.

■ auxiliary report

Rod Ashley, ISMA Auxiliary immediate past president, presented the following report at the annual American Medical Association Auxiliary convention, held June 23 to 26 at the Drake Hotel in Chicago:

Although this has been a superb year for county auxiliaries in Indiana – exemplified by one which produced a project so outstanding that it was recognized and honored by President George Bush – I limit my remarks today to the dramatic change which has occurred in Indiana on the state level in response to crisis.

For a number of years, we operated financially in a hand-to-mouth manner. Then an announcement came which hit us like a freight train. In 1989, the society presented the auxiliary with a contract obligating us to pay for all supplies, stationery, mailings, computer printouts and staff time used. We had to respond to the challenge – or disband.

During the past three years, many changes were made, including:

- Increasing our dues from \$8 to \$18.
- Purchasing our own computer and databases.
- Creating and test marketing state-generated dues bills.
- Redesigning and editing publications to be cost-effective.
- Doubling our board size to include county officers and chairmen.

In effect, we learned to run the auxiliary like a business. The results?

1. The society has been so pleased with our meeting all contracted obligations, they have doubled their annual contribu-

tions to our treasury.

2. The state-generated billing was so successful in retention and recruitment in our test areas that virtually every county has requested the service this year.

3. Our membership totals have stabilized – with increases in numerous counties and in national memberships – now being 87% unified.

4. As of this year, we have over \$100,000 in cash reserves and are proceeding with:

- Expanding membership services.
- Increasing workshop and seminar budgets.
- Hiring nationally recognized speakers for our meetings.

It has been a most exciting period of transition for Indiana. And it proves that when faced with challenges, auxiliaries effec-

tively respond.

Thank you.

Resolution passes

In addition to Rod's report, the Indiana delegation introduced a resolution that was recommended for adoption by the reference committee and passed by the auxiliary House of Delegates. The resolution is now AMA-A policy.

The resolution calls for the AMA Auxiliary to encourage its state and county auxiliaries to support individually or in coalition with other health-concerned organizations the provision of health care for the homeless. It also recommends that the actions be undertaken with the approval of the corresponding state and county medical societies and association. □

ISMA Auxiliary calendar

Sept. 26 – Open board meeting. Embassy Suites North, Indianapolis. 9:30 a.m. to 2:30 p.m. Guest speaker, Julie Alexander, "I Missed Out on Miss America," at 10 a.m. Membership program with "Round 'em up" theme. Lunch at noon. Open board meeting after lunch.

Oct. 6-8 – Leadership Confluence I in Chicago for county presidents-elect.

Oct. 17 – AMA-ERF seminar, "Light My Fire." Holiday Inn Airport, Indianapolis, 9:30 a.m. to 2:30 p.m. Motivational team concept with speaker Barbara Lach of Columbus, Ohio. Fund-raising ideas. AMA-ERF national chairman Sancy McCool will discuss ideas from the AMA-A perspective.

Nov. 4 – Nominating committee meeting.

Nov. 8-9 – Auxiliary hospitality area next to registration desk, ISMA Convention at Westin Hotel in Indianapolis. Program on "Breast Cancer – Ask the Experts" from 9:30 to 11:30 a.m. Nov. 9 at Hyatt Regency Hotel in downtown Indianapolis. □

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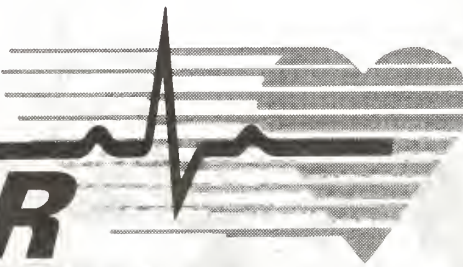
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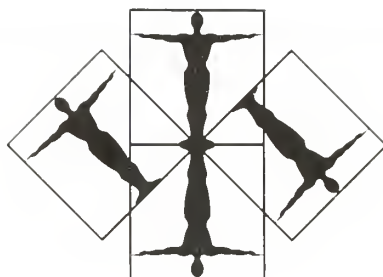
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Carl A. Freed, M.D.

Dr. Freed, 72, a retired Indianapolis obstetrician and gynecologist, died June 20 at Indiana University Medical Center.

He was a 1942 graduate of the Indiana University School of Medicine and an Army Medical Corps veteran of World War II.

Dr. Freed, who retired in 1987, practiced obstetrics and gynecology 34 years. Before moving to Indianapolis, he was in practice with his father, Dr. James Carl Freed of Attica, seven years.

Lewis C. Lohoff, M.D.

Dr. Lohoff, 68, a retired Tell City general practitioner, died July 17 at Perry County Memorial Hospital.

He was a 1950 graduate of the University of Colorado School of Medicine.

Dr. Lohoff practiced in Tell City from 1950 until 1990, when he retired. He is a descendant of the pioneer explorers Lewis and Clark.

Herschel S. Smith, M.D.

Dr. Smith, 79, a Bloomington ophthalmologist, died July 2 at his home.

He was a 1938 graduate of the University of Illinois College of

Medicine and an Army veteran of World War II. During his service in Europe, he commanded an evacuation hospital for Gen. George Patton. He left the Army with the rank of lieutenant colonel.

Dr. Smith was a past president of the Indiana Academy of Ophthalmology, past president of the Owen-Monroe County Medical Society and past chief of staff and past chief of surgery at Bloomington Hospital.

Jerry L. Stucky, M.D.

Dr. Stucky, 61, medical director of Parkview Memorial Hospital in Fort Wayne, died June 30 at the hospital.

He was a 1955 graduate of the Indiana University School of Medicine and a U.S. Air Force veteran.

Dr. Stucky had a family practice in Fort Wayne from 1950 to 1980 and was director of Parkview's family practice residency from 1980 to 1990. He was a diplomate of the American Board of Family Practice, a fellow of the American Academy of Family Physicians and a past president of the Fort Wayne Medical Education Program. He had served as team physician for the

Fort Wayne Komets and North Side High School.

George T. Tindall, M.D.

Dr. Tindall, 70, an Indianapolis family practitioner and obstetrician and gynecologist, died June 25.

He was a 1950 graduate of the Indiana University School of Medicine and an Army veteran of World War II.

Dr. Tindall joined the staff at Community Hospital East in Indianapolis in 1956 and served as chief of staff there from 1962 to 1966. He was senior attending physician at the hospital.

Robert M. Vandivier, M.D.

Dr. Vandivier, 83, a retired Indianapolis internist, died July 29. He was a resident of Danville.

He was a 1937 graduate of the Indiana University School of Medicine, where he became the first full-time member of the department of medicine.

Dr. Vandivier had been chief of student health at the Indiana University Medical Center three years and was in private practice from 1945 to 1964. He was president of the medical staff at St. Vincent Hospital in Indianapolis from 1957 to 1959. □

In memoriam: Martin J. O'Neill, M.D.

Dr. O'Neill, 74, a past president of the Indiana State Medical Association, died July 14 at Porter Memorial Hospital in Valparaiso.

He was a 1944 graduate of the Indiana University School of Medicine and a U.S. Navy veteran.

Dr. O'Neill, who was a member of the ISMA House of Delegates 25 years and ISMA president in 1982, served on the Indiana Medical Licensing Board from



1983-1990 and was former president and chairman of the board of Physicians Insurance Company of Indiana. He was former director of Emergency Medical Services and chief of staff at Porter Memorial Hospital, past president of the Porter County Medical Society and former delegate to the American Medical Association. He was named a Sagamore of the Wabash and a Kentucky Colonel. □

■ news briefs

IU receives grant to study sexually transmitted diseases

The Indiana University Medical Center (IUMC) has received an award from the National Institute of Allergy and Infectious Diseases for the study of sexually transmitted diseases.

The award will allow research scientists to study the organisms causing gonorrhea, chlamydial infection and genital herpes and to study behavioral interventions that may decrease the chance of people transmitting these diseases.

The Cooperative Research Center (CRC) at IUMC will conduct a randomized behavioral intervention trial to reduce recurrent chlamydial infection as a complement to their more basic projects. The CRC also plans to link this work to some of their ongoing studies on prevention of HIV infection. IUMC scientists will conduct the studies in collaboration with scientists at Northwestern University and the University of Wisconsin.

Alzheimer's disease focus of cross-cultural study

The Indiana University Medical Center and the University of Ibadan in Nigeria will cooperate in a four-year study on risk factors that may be clues to the causes of Alzheimer's disease.

The two institutions were awarded about \$2.7 million for the study from the National Institute on Aging. The cross-cultural investigation, the first epidemiologic study designed to determine the environmental risk factors for Alzheimer's disease, will study the prevalence and incidence of Alzheimer's among African Americans in Indianapolis and Africans in Ibadan. Benjamin Osuntokun, M.D., the Ibadan principal investigator, said he has

not seen a single carefully documented case of Alzheimer's disease in Nigeria during his 30 years of work there.

The first stage of the two-stage study will consist of a screening interview with 2,500 randomly selected people at each site. A subgroup of those screened will also have a full clinical work-up. After one year, interim follow-up examinations will be performed on patients having dementing disorders. This will help document the course of

disease and determine diagnosis in questionable cases.

Cancer society sponsors annual oncology workshop

The American Cancer Society, Indiana Division, Marion County Unit, will sponsor its 16th annual Midwest Oncology Workshop Oct. 4 at the Westin Hotel in Indianapolis.

"The Immune System ... Piecing It All Together" is the theme of the program, designed for health care professionals inter-

Magazines without tobacco advertisements

Physicians interested in promoting a smoke-free environment can stock their office reception areas with magazines that do not contain tobacco advertisements. In response to Resolution 88-25, adopted by the 1988 ISMA House of Delegates, INDIANA MEDICINE is publishing a list of magazines that do not contain tobacco advertisements.

Magazines without tobacco advertisements include: *Adirondack Life*, *Air & Space*, *Alaska Magazine*, *American Baby*, *American Health*, *American Heritage*, *American History Illustrated*, *Animal Kingdom*, *Arizona Highways*, *Audubon*, *Aviation Week & Space Technology*, *Backpacker*, *Bicycling*, *Boy's Life*, *Business Week*, *Consumer Reports*, *Cyclist*, *Dance Magazine*, *Diabetes '89*, *Diabetes Forecast*, *Down East Magazine*, *Farm Journal*, *Fishing Facts*, *The Futurist*, *Golf Illustrated*, *Good Housekeeping*, *Hadassah Magazine*, *Harvard Business Review*, *Harvard Medical School Health Letter*, *Health*, *Highlights for Children*, *Historic Preservation*, *Horticulture*, *Humpty Dumpty's Magazine*, *International Travel News*, *Isaac Asimov's Science Fiction*, *Jack and Jill*, *MAD Magazine*, *Maine Fish & Wildlife*, *Maine Life Magazine*, *Mayo Clinic Health Letter*, *Medical Selfcare*, *Model Railroader*, *Modern Maturity*, *Montana Magazine*, *Mother Earth News*, *Mother Jones*, *Nation*, *National Geographic*, *National Parks Journal*, *Nation's Business*, *Natural History*, *The New Yorker*, *North American Review*, *Nutrition Action Healthletter*, *Oceans*, *Old House Journal*, *Organic Gardening*, *Parenting*, *Parents Magazine*, *Personal Computing*, *Petersen's Hunting*, *Popular Communications*, *Prevention*, *Railfan and Railroad*, *Ranger Rick*, *Reader's Digest*, *Runner's World*, *Sail*, *Saturday Evening Post*, *Science*, *Science News*, *The Sciences*, *Scientific American*, *Sesame Street*, *Seventeen*, *Sierra*, *Smithsonian*, *Sports Afield*, *Stork*, *Sunset Magazine*, *Theatre Crafts*, *Travel Holiday*, *Utah Holiday*, *Vegetarian Times*, *Venture Magazine*, *Vermont Life*, *The Washington Monthly*, *Western Outdoors*, *Writer's Digest* and *Yankee*. □

ested in updating their oncology knowledge. The registration fee is \$45.

For more information, contact the American Cancer Society, P.O. Box 78038, Indianapolis, IN 46268, (317) 879-4100.

IU gets \$10 million for cancer research facility

The Indiana University Medical Center in Indianapolis has received a \$10 million federal contribution toward the construction of a cancer research facility. The funding, requested by U.S. Rep. John Myers, will be matched by nonfederal sources.

The new building will be located near the other major re-

search facilities of the medical center and will allow Indiana to participate in the solution of basic problems relating to these diseases.

Funding for the research facility is contained in the fiscal year 1992 appropriations for energy and water development and is to be funded by the Department of Energy, which has jurisdiction over many research-related issues.

Audiocassettes offer tips on financial planning

Financial planning ideas are available direct to physicians through a new product called *Fresh Advice*. Published by the American Medical Association and Planning Fo-

cus, a Redmond, Wa.,-based publisher of legal educational programs for businesses and their professional advisers, the product features 12 practice and personal financial management discussions on audiocassette tapes.

Discussions range from 12 to 38 minutes. Topics include how to fire the difficult employee, techniques to protect personal assets from malpractice claims, eliminating retirement plan headaches and estate planning.

The *Fresh Advice* library, packaged in a book-sized binder, is \$159 for AMA members and \$169 for nonmembers. To order, call the AMA at 1-800-621-8335 and request NL372491. □

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Chicago, IL

October 16
Northbrook, IL

October 23
Lansing, IL



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■ people

Dr. George E. Hutter has been named assistant director of outpatient services for the St. Vincent Hospital Family Practice Residency Program in Indianapolis.

Dr. James A. Ray of Bloomington was named the 1991 Family Physician of the Year at the annual banquet of the Indiana Academy of Family Physicians (IAFP); the award is given to recognize outstanding contributions in patient care and community activities. **Dr. Glen Hoy Speckman** of Indianapolis received the IAFP Distinguished Public Service Award for his involvement in community and public service. **Dr. Raymond W. Nicholson Jr.** of Evansville received the IAFP A. Alan Fischer Award, presented for outstanding contributions to education for family practice in undergraduate, graduate and continuing education programs. **Dr. Kenneth E. Bobb** of Seymour received the IAFP Lester Bibler Award, making him the only IAFP member to receive this award twice; the award recognizes long-term dedication and leadership toward furthering the development of family medicine in Indiana.

Dr. James A. Hall, a Logansport obstetrician and gynecologist, was the featured presenter at grand rounds at the University of Southern California Medical Center, Department of Obstetrics and Gynecology, in Los Angeles, Calif.; he spoke on the management of breast cancer in a private gynecological practice.

Dr. Geeta Bisht has opened a child and adolescent psychiatric practice, Neuropsychiatric Associates, P.C., at 7030 Pointe Inverness Way in Fort Wayne.

Dr. Ross Egger has opened a family practice at the Middletown

Physician Recognition Award recipients

The following ISMA physicians are recent recipients of the AMA's Physician Recognition Award. This award is official documentation of Continuing Medical Education hours earned and is acceptable proof in most states requiring CME in re-registration that the mandatory hours of CME have been accomplished.

Borenstein, Aaron, Fort Wayne
Bowman, John A., Kokomo
Broadie, Thomas A., Indianapolis
Burk, David A., Indianapolis
Clark, Eric D., Plainfield
Fisher, Philip E., Granger
Graham, Nelson V., Evansville
Helm, Robert J., Elwood
Lomas, John N., Indianapolis
McCann, James P., Wabash
Muhler, Joseph C., Fort Wayne

Reihman, Dana H., Richmond
Serwatka, James A., South Bend
Sklenarz, Krystyna M., Merrillville
Slack, John D., Indianapolis
Sneary, Max E., Avilla
Souder, Mark S., Auburn
Sprecher, James J., LaPorte
Tran, Lau, Lyons
Watson, Leo G., Kokomo
Wells, William R., Princeton

Health Center of Saint John's in Anderson.

Dr. Ronald T. Rolley, a general and vascular surgeon, has relocated his main office in Lafayette to 100 Saw Mill Rd.

Dr. Fred Spottsville Jr. has joined Nassser, Smith & Pinkerton Cardiology and will practice at the group's office at The Heart Center of Anderson.

Dr. F. Brian Gibson has joined Perkins Facial Plastic Surgery in Indianapolis to complete a year of specialized facial plastic and reconstructive surgery training through a special fellowship program of the American Academy of Facial Plastic and Reconstructive Surgery.

Drs. Mark R. Freije and **Barry K. Hull** have opened a family practice office at 5302 E. Washington St. in Indianapolis.

Dr. Lucien A. Lewis, a Gary pediatrician, received a Distinguished Service Award from Methodist Hospitals in Lake County.

Dr. C. Kurt Alexander, a

Muncie internist, and **Dr. James P. Beck**, a Washington, Ind., internist, were elected to fellowship in the American College of Physicians.

Dr. Thomas L. Sevier was named medical director of Central Indiana Sports Medicine in Muncie.

Dr. Joseph J. Onorato, a Lafayette internist, was named vice president of medical staff affairs at St. Elizabeth Hospital Medical Center in Lafayette.

Dr. James R. Rohrer of El Nora has retired as Daviess County Health Officer, a position he held the past 20 years.

Dr. David G. Pietz, a Bluffton gastroenterologist, retired from the Caylor-Nickel Medical Center after practicing there 34 years.

Dr. B. Trent Cooper has retired after practicing medicine in Roanoke 36 years.

Dr. Paul E. Schmidt, an Indianapolis cardiovascular disease specialist, was named chairman of Butler University's board of trustees.

Dr. James B. Steichen of Hand Surgery Associates in Indianapolis was named president of the board of American Pianists Association.

Dr. James D. Reid, a Marion ophthalmologist, will retire Oct. 1; he has practiced in Marion since 1960.

Dr. Stephen G. Brueggeman of Columbus has been named a diplomate of the American Board of Ophthalmology.

Dr. Albert E. Weiss has retired after 33 years as a Michigan City family practitioner.

Dr. Robert F. Jackson, a general surgeon, was elected chief of staff of Marion General Hospital. Also elected were **Dr. David C. Brandes**, a urological surgeon, vice president, and **Dr. Regino B. Urgena**, an anesthesiologist, secretary.

Dr. Virgil R. Graber, a Goshen obstetrician and gynecologist, has retired.

Dr. Jessie E. Cooperider, a Tipton family practitioner, was named to the board of directors of the Alumni Association at the University of Health Sciences College of Osteopathic Medicine in Kansas City.

Dr. Michael B. Hoover, a general surgeon, was elected to the board of directors at Deaconess Hospital in Evansville.

Dr. Frank A. Beardsley has retired after practicing family medicine in Frankfort 36 years. □

New ISMA members

John E. Albrecht, M.D., Clinton, internal medicine.

Harold G. Baker, M.D., Indianapolis, family practice.

Sook Mie Choi, M.D.,

Mishawaka, obstetrics and gynecology.

Paul M. Dake, M.D., Michigan City, family practice.

Annemarie P. De Santo, M.D., Indianapolis, general surgery.

Marcus S. Deranian, M.D., Kokomo, ophthalmology.

William P. Deschner, M.D., Fort Wayne, cardiovascular surgery.

Stephen B. Freeman, M.D., Indianapolis, head and neck surgery.

Harry C. Harvey III, M.D., Newburgh, family practice.

Timothy A. Hupfer, M.D., Indianapolis, orthopaedic surgery.

Renato V. La Rocca, M.D., Louisville, Ky., oncology.

Stanley Lowenbraun, M.D., Jeffersonville, oncology.

Steven M. Meyer, M.D., South Bend, ophthalmology.

Elizabeth A. Miller, M.D., Shelbyville, general practice.

Shahid T. Muftri, M.D., Evansville, cardiovascular diseases.

Riley Perry-Lloyd, M.D., Indianapolis, obstetrics and gynecology.

M.M. Rajendran, M.D., Rochester, diagnostic radiology.

Robert W. Swan, M.D., Indianapolis, obstetrics and gynecology.

Brenda A. Troyer, M.D., Evansville, obstetrics and gynecology.

Bradley A. Weinberg, M.D., Indianapolis, cardiovascular diseases.

Residents

Curtis M. Bejes, M.D., Wabash, family practice.

Charles D. Blanke, M.D.,

Indianapolis, hematology.

David P. Davis, M.D., Terre Haute, family practice.

Charlotte M. Dugan, M.D., Noblesville, otolaryngology.

Mark R. Freije, M.D., Indianapolis, family practice.

Floyd B. Gibson, M.D., Indianapolis, otolaryngology.

Gregory A. Haley, M.D., Lebanon, psychiatry.

Barry K. Hull, M.D., Indianapolis, family practice.

Steven M. James, M.D., Indianapolis, neurological surgery.

Keith R. Knuth, M.D., Indianapolis, ophthalmology.

Michael S. La Rosa, M.D., Indianapolis, family practice.

Lori A. Lynch, M.D., Indianapolis, anatomic/clinic pathology.

Robert G. Matheny, M.D., Indianapolis, cardiovascular surgery.

Jefferson M. Qualls, M.D., New Whiteland, family practice.

Kelly Rhoadarmer, M.D., Indianapolis, psychiatry.

Robert M. Schweitzer, M.D., Indianapolis, psychiatry.

Himanshu Shah, M.D., Indianapolis, diagnostic radiology.

Kevin A. Short, M.D., Indianapolis, radiology.

Paul F. Siami, M.D., Evansville, urological surgery.

Curtis C. Stautz, M.D., Evansville, diagnostic radiology.

John M. Walker, M.D., Indianapolis, family practice.

David D. Whang, M.D., Fort Wayne, cardiovascular diseases.

Jeffrey K. Wilson, M.D., Kokomo, family practice.

Susan D. Wyatt, M.D., Logansport, family practice. □

■ classifieds

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What: Annual convention

When: Nov. 8-10, 1991

Where: Westin Hotel in downtown Indianapolis

For more information: Call Denise Le Doux at the ISMA, (317) 261-2060 or 1-800-969-7545.

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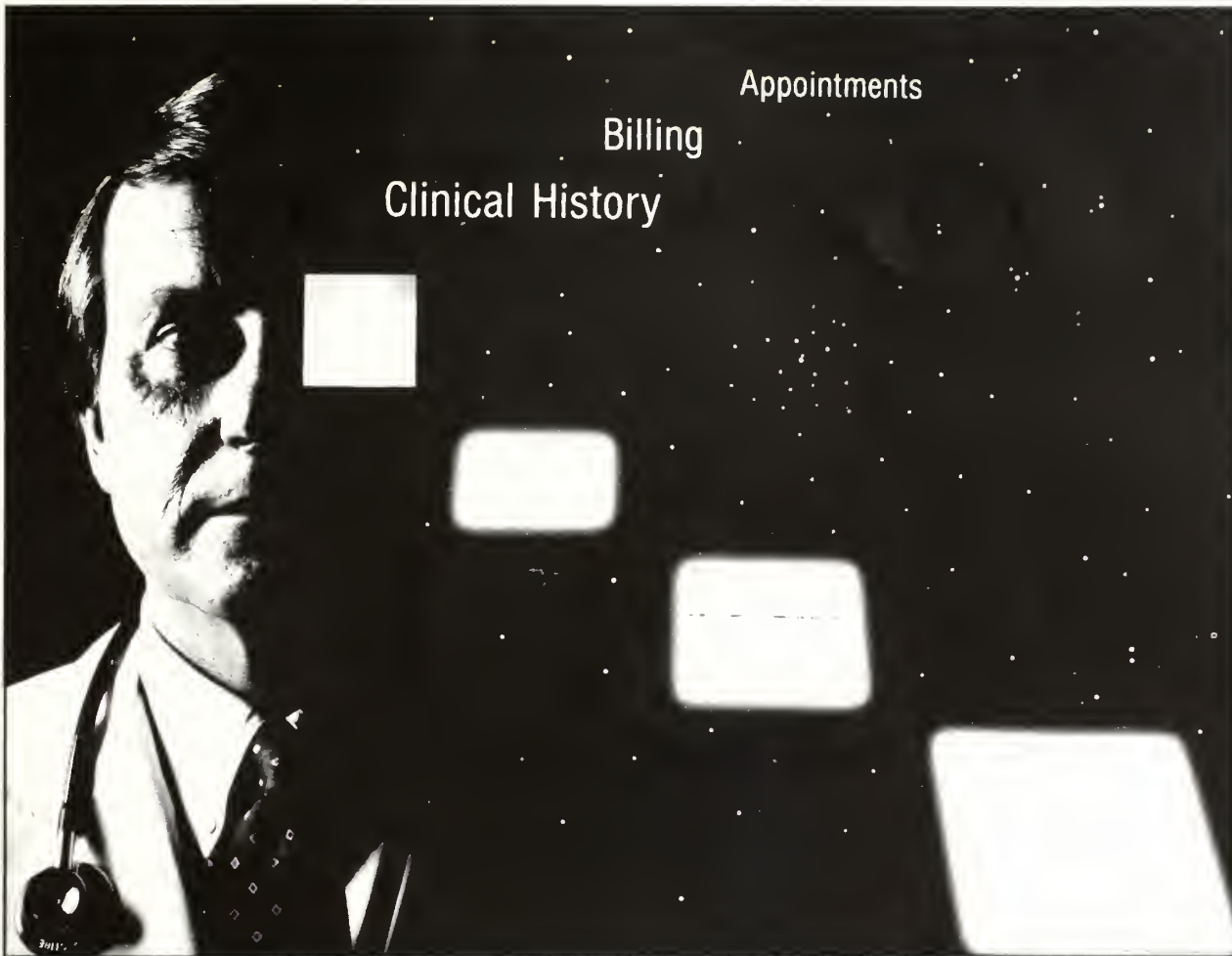
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October 1991

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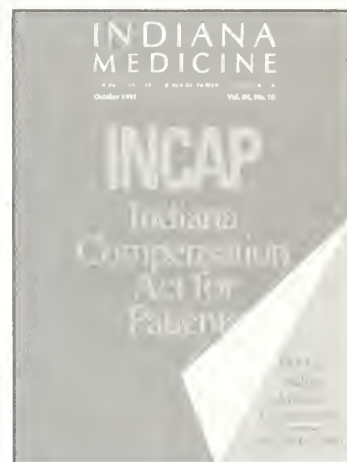
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Cover story on page 708 and 734. Cover art by Diane Alfonso of Indianapolis.

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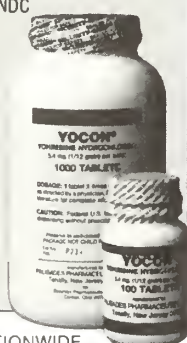
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

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References:

1. A. Morales et al., New England Journal of Medicine: 1221, November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

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Supreme Court rules in Lawrance right-to-die case

The Indiana Supreme Court ruled Sept. 16 that families and their physicians – not courts and special interest groups – should be allowed to make health care decisions for loved ones. The Supreme Court agreed to hear the case at the request of the family of Sue Ann Lawrance, a 42-year-old brain-damaged Indianapolis woman whose family wanted to end her artificial nutrition and hydration.

Lawrance, who died July 18, had been in a persistent vegetative state the past four years. Her parents wanted to withdraw artificial feedings, but a Christian advocacy group for the disabled challenged a lower court order that permitted the withdrawal of artificial feedings. The Indiana Supreme Court eventually decided to hear the case even though Lawrance died before the oral arguments were originally scheduled to begin.

Chief Justice Randall Shepard wrote in the court's 4-1 decision, "Decisions concerning withdrawal of treatment are not necessarily better decided by the courts." He also wrote, "In our society, health care decision-making for patients typically transfers upon incompetence to the patient's family. ... Most Americans want the decisions about their care, upon their incapacity, to be made for them by family and physician, rather than by stranger or by government."

The ISMA filed an amicus curiae brief in the case, supporting Lawrance's parents' decision to stop the tube feedings.

AMA issues call to action on sponsorship of HR 3070

Physicians are being asked to urge their congressional representatives to co-sponsor HR 3070. The bill would impose a legislative solution that will achieve all of the AMA's basic objectives on the implementation of the resource-based relative value scale (RBRVS), the physician payment reform legislation enacted in 1989. Additional congressional sponsorship is being sought to let the Health Care Financing Administration know that its proposed implementation plan is unacceptable to physicians. Physicians also are being asked to send thank you letters to representatives who have already become co-sponsors. Indiana co-sponsors at INDIANA MEDICINE press time were Reps. Andy Jacobs and Frank McCloskey.

'Evening with the Stars' theme of ISMA legislative reception

Make plans now to attend "An Evening with the Stars," the annual ISMA/IMPAC legislative reception. The event, which gives physicians an opportunity to discuss issues of concern to medicine with their legislators, will be from 6 to 8:30 p.m. Wednesday, Jan. 15, at the Hyatt Regency Hotel in downtown Indianapolis. All ISMA members and members of the Indiana General Assembly are invited. For more information, call Susan Grant at the ISMA, (317) 261-2060 or 1-800-969-7545. □

■ from the museum

Contemporary travelers need not stray too far from their vacation resorts to experience the remarkable stories, interesting characters and fascinating structures that comprise medical history.

"There are places all over the country that contributed to the evolution of health care," said Martin R. Lipp, M.D., author of *Medical Landmarks USA: A Travel Guide*. "No matter where people go, they can easily integrate medical history into their travels."

During the annual meeting of the Indiana Medical History Museum in Indianapolis, Dr. Lipp will explore many of the more than 600 historical sites, medical landmarks and diverse museums that tourists may visit. The meeting, which is open to the public, will be held from 2 p.m. to 4 p.m. Sunday, Oct. 20, at the museum.

Dr. Lipp will discuss the human element that helped shape the development of these unique structures and sites. The colorful stories will enrich any tourist's experiences while visiting the landmarks.

For example, Philadelphia's numerous historical structures include the Pennsylvania Hospital, the first hospital in the colonies. Originally conceived by Thomas Bond, M.D., in the 1750s, the idea for the hospital aroused little enthusiasm until Benjamin Franklin supported the project.

Franklin convinced the Pennsylvania Assembly to contribute 2,000 pounds towards the hospital's construction under the condition that Franklin match that figure by soliciting private donations. Franklin later recalled, "I do not remember any of my political manoeuvres the success of which gave me at the time more pleasure; or that in afterthinking



The cover of Dr. Martin Lipp's travel guide.

of it, I more easily excused myself for having made the use of cunning."

In addition, the presentation will highlight the compassion and devotion that many people have exhibited to provide health care. The Kalaupapa National Historical Park in Hawaii includes the hospital, the doctor's house, the church and other buildings built by Father Joseph Damien after he arrived in 1873 to address the plight of people with leprosy.

Lepers were confined to the peninsula after King Kamehameha V signed the Act to Prevent the Spread of Leprosy in 1865. However, the isolated community, dominated by disease and hopelessness, slowly degenerated until Father Damien's arrival.

Gradually winning the trust of the people, Father Damien worked tirelessly to construct buildings, run fresh water lines,

plant crops, bandage the patients' sores and care for the spirit of his flock. When he died of leprosy in 1889, Father Damien had demonstrated to the world that once again love can provide powerful medicine.

Besides discussing the historical sites and people, Dr. Lipp will recount his experiences in gathering the information for his book. After the presentation, the audience can meet Dr. Lipp and share their travel experiences during an informal reception.

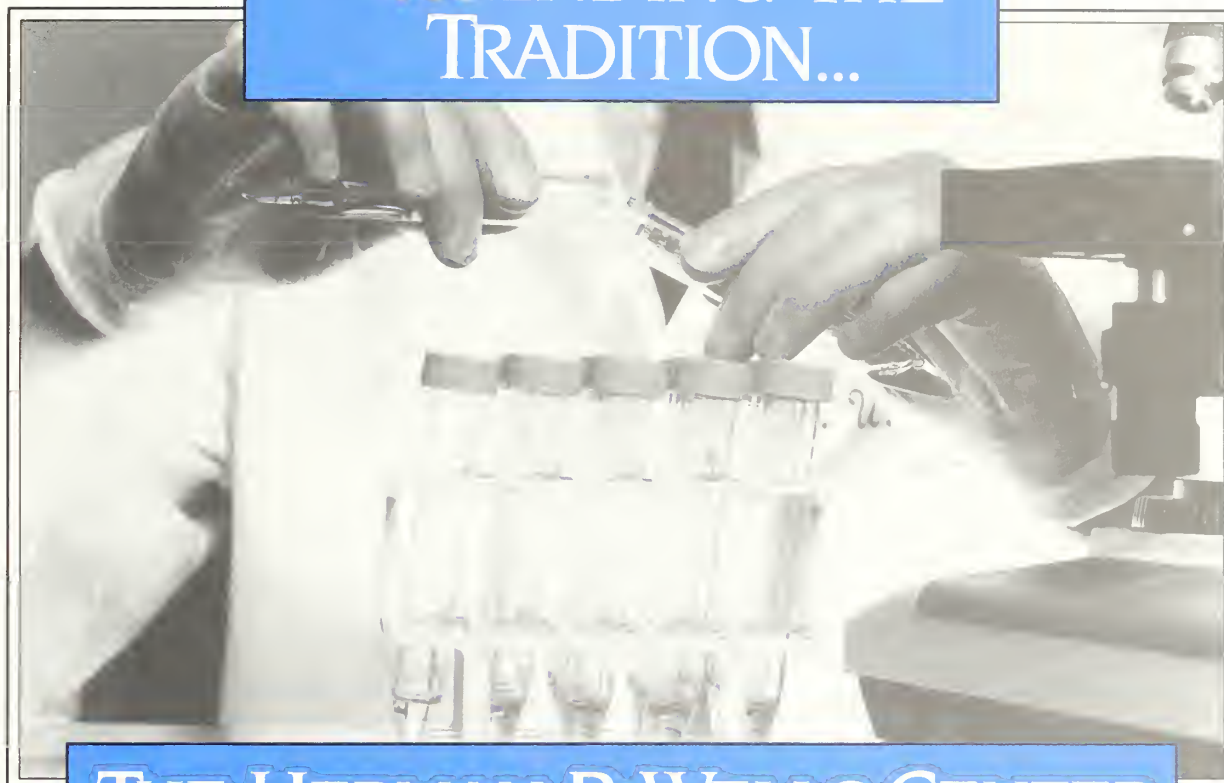
People attending the annual meeting also can tour the Indiana Medical History Museum. The facility was the last site visited by Dr. Lipp during his year-long tour of the nation's various medical landmarks.

"This marvelous museum is quite simply without peer in the entire country," wrote Dr. Lipp in *Medical Landmarks USA: A Travel Guide*. "What sets it apart from the competition is not its collection ... but rather the incredibly well-preserved building in which the collection is displayed."

"The stunning fact about this building is that it is all still there, essentially in the same condition as at the turn of the century," he continued. "Nothing was torn out and replaced, no woodwork was painted over, no one bothered to bring in metal desks and tables and tear out all the built-ins. This is a pristine, turn-of-the-century research building."

For more information about the annual meeting, call the Indiana Medical History Museum, (317) 635-7329. Visitors should enter the museum, located on the grounds of Central State Hospital, from the museum's entrance at 3045 W. Vermont St. or the hospital's entrance on Warman Street. □

EXTENDING THE TRADITION...



THE HERMAN B WELLS CENTER FOR PEDIATRIC RESEARCH

Recently opened in the James Whitcomb Riley Hospital for Children, on the Indiana University Medical School campus in Indianapolis. The Herman B Wells Center—a 20,000 square foot facility—now houses M.D. and Ph.D. investigators who focus on three broad areas of pediatric research:

Dr. Ora Pescovitz leads a group of scientists who study the effects of hormones on fetal development.

Dr. Claire Doerschuk, and other scientists, are concentrating on the localization of leukocytes in the lung during infections.

Dr. David Williams, Scientific Director of the Wells Center, leads a group who are investigating the development of normal and leukemic blood cells and other cancer cells. This group also is involved in basic studies that will lead to future attempts at somatic gene therapy.

The common goal of research conducted in the Wells Center is a better understanding and treatment of devastating diseases that affect children... a tradition begun at Riley Hospital in 1926.

**HERMAN B WELLS CENTER FOR PEDIATRIC RESEARCH
JAMES WHITCOMB RILEY HOSPITAL FOR CHILDREN**

Indiana University Medical Center
Indianapolis, Indiana

■ cme calendar

The Ear Institute

The Ear Institute of Indiana will sponsor Otology Update 1991 at the Community Hospital Professional Building in Indianapolis Oct. 30.

For details, call George Hicks, M.D., course director, (317) 842-4757 or 1-800-522-0734.

Indpls. Regional Heart Center

The Indianapolis Regional Heart Center will sponsor these CME courses:

- Oct. 17** - Cardiology Grand Rounds, Updates in Cardiac Surgery, Catterhous, Martinsville.
- Oct. 19** - Risk Factor Identification and Management Conference, The Murat Shrine, Indianapolis.
- Nov. 12** - Cardiology Grand Rounds: Athletes and Heart Disease, Holiday Inn South, Indianapolis.
- Nov. 12-13** - Nursing Cardiac Refresher Program, Indianapolis Regional Heart Center at St. Francis Hospital, Indianapolis.
- Dec. 3-4** - Nursing Cardiac Refresher Program, Indianapolis Regional Heart Center at St. Francis Hospital, Indianapolis.

For more information, call Brandon Roger or Marsha Breen, (317) 783-2776.

Indiana University

The Indiana University School of Medicine will sponsor these courses:

- Oct. 18-19** - Family Practice Update in Cardiology: Emphasis on Office Practice, Krannert Institute of Cardiology, Indianapolis.
- Oct. 25** - Second Annual Anxiety Update, University Place Conference Center and Hotel, Indianapolis.
- Nov. 8-9** - Wound Management For Health Care Providers, Radisson Hotel, Keystone at the Crossing, Indianapolis.
- Nov. 14-15** - Garceau Wray Lectures, Indiana University Medical Center, Indianapolis.
- Nov. 18-22** - Second Annual Comprehensive Transthoracic & Transabdominal Fine Needle Aspiration Biopsy Cytology, University Place Conference Center and Hotel, Indianapolis.
- Dec. 6-7** - Facial Plastic Surgery Seminar, Indiana University Medical Center, Indianapolis.

For more information, call Sheryl King, (317) 274-8353.

Rehabilitation medicine

The Indiana Center for Rehabilitation Medicine and the Indiana Society of Physical Medicine and Rehabilitation will co-sponsor a full day conference titled "Office Management of Common Musculoskeletal Problems."

The conference will be held Nov. 20 at the Holiday Inn Air-

port, Indianapolis. For more information, call Lynn Morton or Cherie Huser at (317) 290-2000 or 1-800-875-6640.

Methodist Hospital

Methodist Hospital of Indiana will sponsor the following courses:

- Oct. 17-18** - 12th Annual Harold C. Ochsner, M.D., Radiology Lecture, Methodist Hospital, Radiology Classroom, Indianapolis.
- Oct. 21-22** - AmbuQual Users Conference, Days Inn at the Airport, Indianapolis.
- Nov. 1-2** - Advanced Cardiac Life Support Course, Methodist Hospital, Wile Hall, Indianapolis.
- Nov. 6** - Practical Topics in the Care of the Elderly: Lester Bibler Day, Methodist Hospital, Petticrew Auditorium, Indianapolis.
- Nov. 15-16** - Advanced Trauma Life Support Course, Methodist Hospital, Wile Hall, Indianapolis.
- Nov. 20** - Annual Pediatric Critical Care Symposium: Pharmacology, Methodist Hospital of Indiana, Wile Hall #320, Indianapolis.
- Dec. 4** - Annual Toxicology Seminar, Westin Hotel, Indianapolis.

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and Human Services, 1990, diazepam tablets may be available from as many
as 17 companies. Tablets shown represent 5 mg diazepam tablets.

The effect of radon on human health

Guy F. Perry, M.D.
Indianapolis

The concept that radon may present an environmental risk to the general public has caused much alarm in the past five years. The concept is even more difficult to grasp because the potential risk involves a hazard that does not trigger any of our senses. We cannot taste, smell or see it.

Radon is an inert gas and the natural background product of uranium. It is present naturally in soil and can be found in soils with rocks containing granite, shale and phosphate.¹ It also has been

found elevated in soils contaminated with radioactive waste.

Radon has a half-life of approximately four days. The breakdown products of radon ("radon daughters" - polonium-218 and polonium-214) are responsible for the cancer-causing effects (Figure 1). These products

emit alpha particles that attack and alter the bronchial epithelium when inhaled. The outdoors presents little risk because of the dilution of radon with the atmosphere. The risk occurs with confinement in enclosed spaces, particularly homes. Families exposed for more than eight hours a day are a particular concern.²

Lung cancer is the most serious health risk related to radon exposure. Estimates of the risk of lung cancer come from epidemiologic and autopsy studies of uranium miners in Europe in the early 20th century.³

The Environmental Protection Agency (EPA) estimates that up to 20,000 lung cancer deaths are due to radon exposure, out of approximately 140,000 annual lung cancer deaths.⁴ The risk depends on the level of radon exposure and the length of exposure time. Cigarette smoking causes approximately 90% of lung cancer cases. The interaction between radon and cigarette smoke is unknown.

The EPA began studies in the mid 1980s after preliminary data showed elevated levels of radon in eastern Pennsylvania.¹ Indiana

Abstract

Recently, physicians have had to come to grips with the issue of indoor radon. Patients and friends are asking whether there are risks to elevated levels in homes and commercial dwellings. This article summarizes current information and helps physicians respond to inquiries from patients.

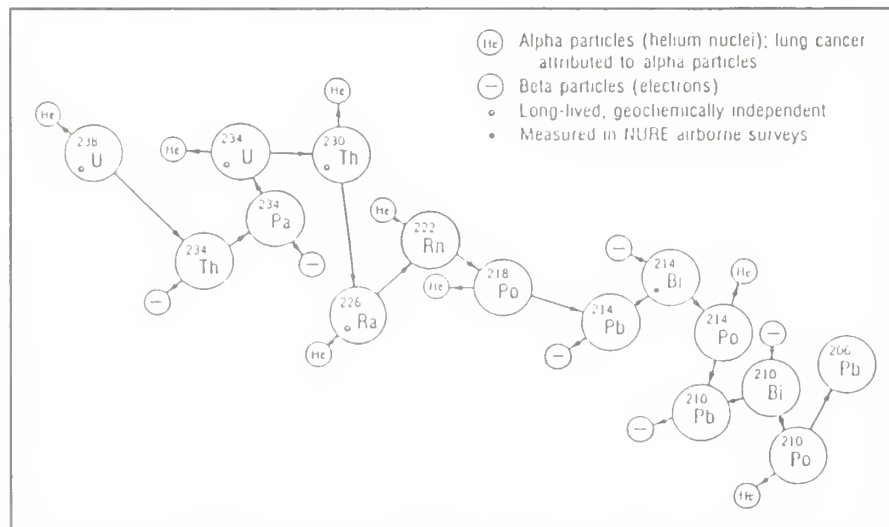


Figure 1: Simplified uranium - 238 series. Because it has a relatively long half-life (3.8 days), is chemically inert, is a gas and gives off a relatively large and heavy alpha particle during its decay process, radon-222 constitutes the greatest health hazard to the general population. From Tanner (1986).

was one of seven states included in the State/U.S. EPA Radon Assistance Monitoring Program. Approximately 1,200 tests were performed during the 1987-88 heating season using charcoal canisters. Twenty-six percent of the homes tested exceeded the EPA action level of 4.0 pCi/L (picocuries/liter) (Table). Nationally, more than one-third of the houses exceeded the EPA action level.⁴ The EPA administrator recommended that all homes be checked. The EPA serves only as an advisor and has no regulatory role over indoor air quality.

The amount of radon that may be present in dwellings varies greatly. Homes on the same street may have different radon levels. The radon level depends mainly on the content of radioactive materials in the soil near the foundation. Various materials and methods used in construction may contribute to the radon content. Radon can enter homes through cracks in the foundation, floor drains, sump pumps and water and sewage pipes. Poor ventilation can cause excess radon build-up, and negative atmospheric pressure in homes allows radon to enter from surrounding soil. These factors must be addressed to reduce radon levels.

Homeowners can detect elevated levels of radon with commercially available test kits. The EPA has published guidelines for homeowners concerning detection⁴ and reduction.⁵ Radon detection initially is performed with a charcoal canister, available from most discount and hardware stores for \$15 to \$20. The canister should be placed in the lowest level of the house (i.e., basement), preferably in the winter when indoor ventilation is the least and a truer reading occurs. After

Table	
1988 Indiana/EPA indoor radon survey	
Distribution of indoor radon screening measurements	
Radon levels, pCi/L	Percent of houses with these levels*
< 4	74
4 - 20	24
> 20	2
Average level	3.6
Number of houses measured	1,217
* There is a 95% certainty that these values represent homes in Indiana within three percentage points.	

three to seven days, the kit is sent to the manufacturer for a reading. If the results show that the level is greater than 4.0 pCi/L, further testing using the alpha-track detection method should be performed. The detector is a small sheet of special plastic material enclosed in a container with a filter-covered opening. After three to 12 months of exposure, the plastic material with the alpha tracks is chemically enhanced and measured by the manufacturer or laboratory.

If screening levels are less than the EPA action level of 4 pCi/L, nothing further should be done.⁴ If levels are greater than 4 pCi/L and less than 20 pCi/L, the EPA recommends that mitigation occur within a few years. Levels greater than 20 pCi/L should be mitigated within several months. According to the EPA, the higher the concentration, the greater the risk of lung cancer.

Several factors complicate the urgency with which mitigation should occur. EPA studies are

performed on the lowest levels of dwellings where radon levels are expected to be the highest. Most people do not live, sleep or spend much time in their basements. Clearly, the greatest risk for lung cancer is cigarette smoking. The role of passive smoke concerning lung cancer has received increasing attention.^{6,7} How many children live in the home? If there are elevated levels of radon, children would be exposed for a longer period of time and may develop adverse effects of radiation. The amount of time spent in the home is another factor. If a person spends minimal time in the home, the risk is less. The length of time that a person will live in the home is another factor. The mobility of American society warrants a re-evaluation of each house after relocation.

To reduce the risk of adverse effects of radon exposure in homes, follow these guidelines:

1) Eliminate cigarette smoking in the household. This reduces not only individual risk but

family risk.

2) People should spend more of their time away from the lowest levels of the house.

3) Ventilation should be encouraged by opening windows or using fans.

If these measures are not satisfactory, use a professional contractor experienced with radon reduction methods.⁵ A thorough evaluation should be performed to determine the most effective way to reduce radon levels.

Three EPA publications regarding radon are available: *A Citizen's Guide to Radon*,⁴ *Radon Reduction Methods*⁵ and *Radon Reduction Techniques for Detached Houses*. To order copies of these publications, write Indiana State Board of Health Radiological Health Section, 1330 W. Michigan St., P.O. Box 1964, Indianapolis, IN 46204-1964. Homeowners should seek appropriate references since only about 10 states license companies that measure radon and even fewer states license companies that reduce radon.

Summary

Radon is a cause of lung cancer.

EPA studies show a wide variation in radon levels, which can be detected only by measurement. The EPA recommends measuring all homes and suggests methods for mitigation of elevated levels. The interaction between cigarette smoking, the greatest cause of lung cancer, and radon is unknown. Risk assessments can be obtained only by following large population groups in a controlled manner. □

Dr. Perry is director of Occupational Medicine Education and the Occupational Medicine Residency Program at Methodist Hospital in Indianapolis.

Correspondence: Guy F. Perry Jr., M.D., Department of Medical Education, Methodist Hospital of Indiana Inc., 1701 N. Senate Blvd., Indianapolis, IN 46202.

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Endoscopic detection of a tiny cecal ulcer containing carcinoma in-situ

Douglas K. Rex, M.D.
Thomas A. Broadie, M.D.
Meredith T. Hull, M.D.
Indianapolis

Colorectal cancer is the second leading cause of cancer death in the United States, with

Figure 1:
Photomicrograph showing complex gland formation and nuclear atypia (carcinoma in-situ) in the original pinch biopsy (300 X).



Abstract

A 3-mm cecal ulcer without any adjacent polypoid structure was detected in a 66-year-old asymptomatic man undergoing screening colonoscopy. Biopsies demonstrated carcinoma in-situ. The literature on tiny colonic carcinomas and carcinoma in-situ in the absence of any polyp is reviewed in this article.

more than 155,000 new cases and 60,900 deaths estimated in 1990.¹ Nearly all colorectal cancers arise from benign adenomatous polyps.² Recently, we encountered a 3-mm cecal ulcer with no adjacent polypoid tissue in an asymptomatic 66-year-old man undergoing screening colonoscopy. The lesion contained carcinoma in-situ.

Case report

A 66-year-old asymptomatic Indiana man whose father had rectal cancer at age 60 underwent a screening colonoscopy. A 2-mm polyp on the lateral wall of the cecum was excised and found to be a tubular adenoma. The only other abnormality in the colon was a 3-mm, shallow, barely perceptible ulcer between the appendiceal orifice and the ileocecal valve. Pinch biopsies revealed a focus of carcinoma in-situ (Figure 1).

Right hemicolectomy was performed. After fixation, the pathologist could locate the lesion



Figure 2: Photograph of the resected surgical specimen. The forceps mark the barely perceptible lesion.

only with assistance from the surgeon (Figure 2). Histologic examination revealed marked dysplasia of flat epithelium with a tiny area of superficial ulceration and a sharp conversion of dysplastic epithelium to normal flat mucosa (Figure 3). The focus of carcinoma in-situ was removed with the pinch forceps. No cancer was found in the bowel wall or adjacent lymph nodes.

Discussion

A 3 mm cecal ulcer containing carcinoma in-situ was detected in a 66-year-old man whose only other colonic abnormality was a 2-mm right colon adenoma. Most experts believe that colorectal cancers arise in nearly all cases from previously benign adenomatous polyps.²⁻⁴ The chance of carcinoma being present in adenomatous polyps is proportional to their size and is extremely low in polyps smaller than 5 mm.⁵

Although no polypoid structure was visible endoscopically or surgically, a tiny polyp may have been present earlier but was destroyed by the central ulcerative process. Nevertheless, the presentation of carcinoma in-situ in a lesion with no polypoid aspects in

a patient without ulcerative colitis or radiation injury is extremely unusual. Others have reported the rare occurrence of very small polypoid cancers,^{6,8} small ulcerated cancers with raised edges⁹ or small flat carcinomas detected by serial sectioning of normal mucosa adjacent to established colon cancers.¹⁰⁻¹¹ However, only in this case and one other¹² has carcinoma in-situ or cancer been detected in humans in the epithelium of an otherwise normal colon and in the complete absence of any polypoid structure. Two additional cases have been mentioned but incompletely described.¹³

In summary, a 66-year-old man had carcinoma in-situ in a tiny cecal ulcer without any adjacent polypoid tissue. Endoscopists should know that although such lesions are rare, they may contain neoplastic tissue and appropriate biopsy samples

should be obtained. □

Dr. Rex is with the Division of Gastroenterology, Dr. Broadie is with the Department of Surgery, and Dr. Hull is with the Department of Pathology at the Indiana University Medical Center in Indianapolis.

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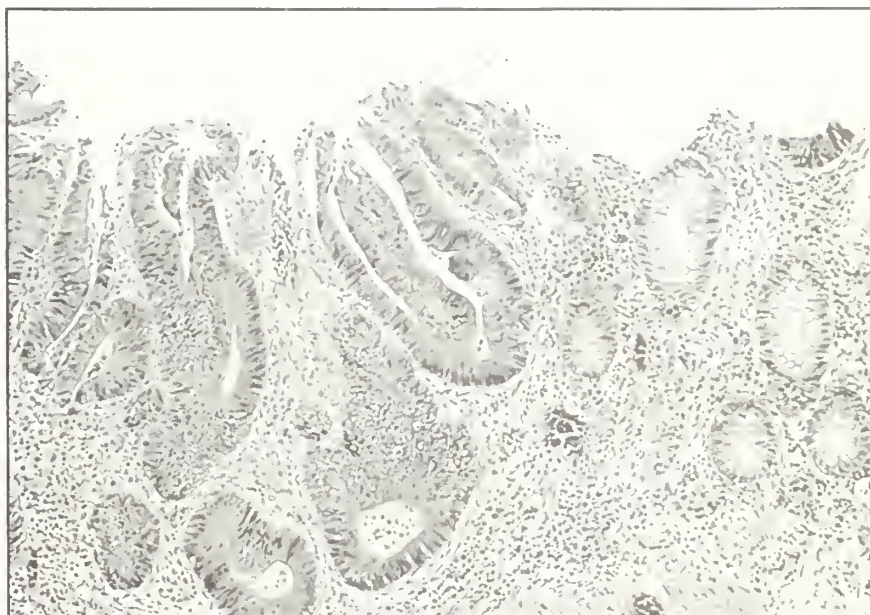


Figure 3: Photomicrograph of tissue from the resected colon. Note the neoplastic glands (left) and normal mucosa (right) and the abrupt transition between them. There is also superficial ulceration (100 X).

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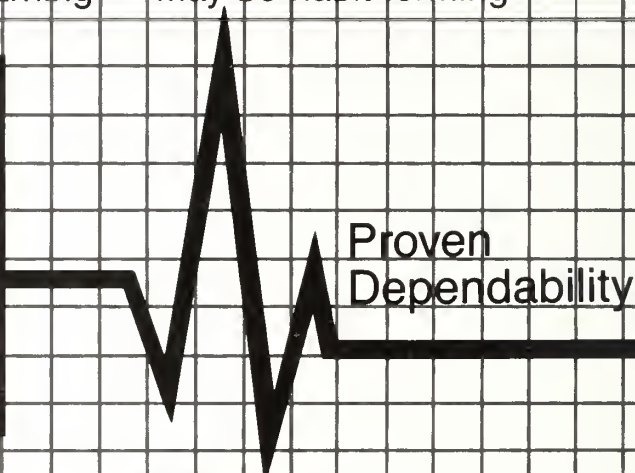
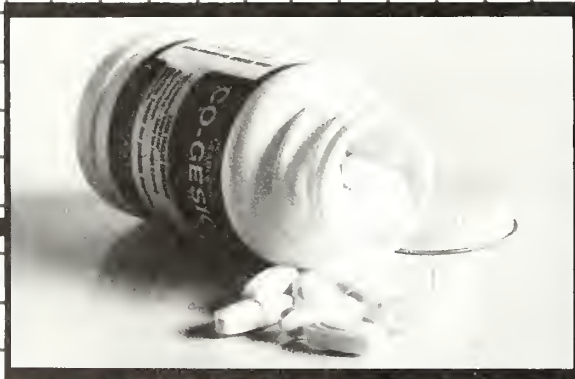
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Thyrototoxic periodic paralysis in a Caucasian man: Recognition and diagnosis

J. Matthew Neal, M.D.
Indianapolis

Periodic paralyses are uncommon disorders characterized by episodic skeletal muscle weakness that may rob the sufferer of voluntary skeletal muscle movement, with return of strength between attacks. This syndrome may occur in multiple hereditary and acquired patterns, often with hypokalemia.

The most common acquired form is thyrototoxic periodic paralysis (TPP),¹ a syndrome consisting of paroxysms of muscle weakness associated with hyperthyroidism. It occurs much more frequently in Oriental populations and has a striking male preponderance; its presence in Caucasian men is very infrequent.² The relative unfamiliarity of this disease among physicians in the United States may lead to errors in diagnosis.³

The following case is a young Caucasian man in whom the diagnosis of thyrototoxic periodic paralysis was not initially suspected.

Case report

The patient was a 25-year-old white man in excellent health until 1986, when he began experiencing episodes of symmetrical muscle weakness and cramps. He was physically active, often performing heavy labor, and consumed a normal diet. There was

no history of exogenous drug use or a family history of similar episodes. He denied having complete paralysis but experienced difficulty walking and rising from a chair. The spells were especially precipitated after consuming large amounts of high-carbohydrate foods and, occasionally, after strenuous activity.

The attacks occurred with increasing severity during a one-month period, ending in a syncope attack involving difficulty moving all four extremities. He was seen in the emergency department, where he regained consciousness and complained of muscle weakness and cramping. Serum potassium was 1.9 mmol/L, which increased to 5.1 mmol/L

after only 30 mmol of intravenous potassium chloride. Correction after such a small amount was consistent with a transcellular shift of potassium rather than a true body deficit. Other serum chemistries were unremarkable. Spot urine potassium was only 7 mmol/L, ruling against potassium loss. Thyroid functions were not collected. The patient was discharged after four days with a serum potassium of 4.3 mmol/L and complete resolution of symptoms.

Although potassium wasting and hyperaldosteronism were not confirmed, he was diagnosed as having Bartter's syndrome, based on a random elevated renin level, and began taking spironolactone

Abstract

Periodic paralyses are uncommon disorders characterized by episodic muscle weakness, often with hypokalemia. Thyrototoxic periodic paralysis (TPP) is the most common and is rarely seen in the Caucasian population; the relative unfamiliarity of TPP among physicians in the United States may lead to initial errors in diagnosis. This article presents the case of a 25-year-old white man with frequent episodes of skeletal muscle weakness and cramping, associated with profound hypokalemia. Laboratory evaluation demonstrated primary hyperthyroidism, and a diagnosis of TPP was made. The disorder is found more commonly in men between the ages of 20 and 40. Hypokalemia is the most consistent laboratory abnormality, representing a transcellular shift rather than a total body deficit; the exact mechanism is unknown. The exercise test demonstrates distinct electromyographical abnormalities in those with periodic paralysis. The definitive treatment of TPP is establishing a euthyroid state.

Case Report Laboratory Values vs. Normal Limits

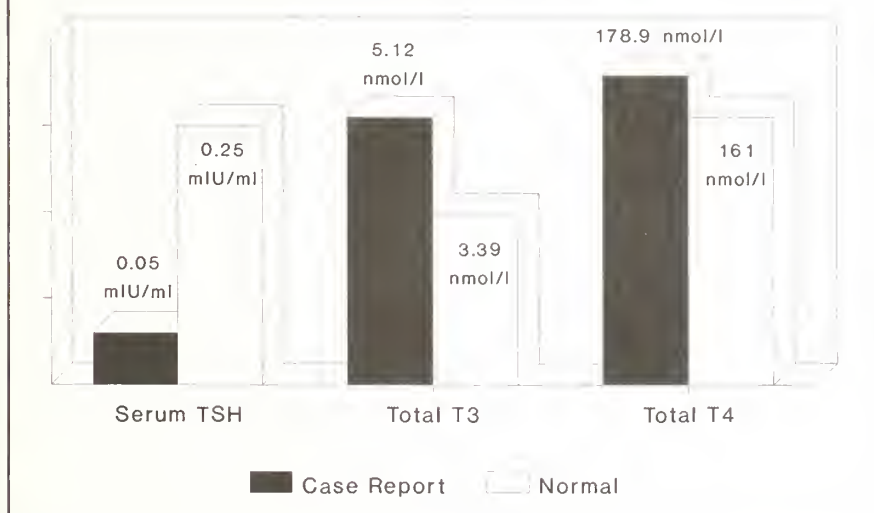


Figure 1.

and ibuprofen. Despite this treatment, the attacks continued. In 1987, he moved to another state and was lost to follow-up until 1990. During that period, he experienced approximately 20 episodes of lower extremity weakness that were alleviated by over-the-counter potassium preparations and for which he did not seek medical care.

In May 1990, he again appeared in the emergency department, complaining of lower extremity weakness, cramping and an inability to walk. A potassium level of 1.8 mmol/L led to intravenous administration of potassium chloride, increasing the level to 5.0 mmol/L, resulting in total relief of symptoms. Physical examination was unrevealing, with no evidence of muscle wasting, neurologic deficit, goiter or exophthalmos. Normal values were obtained for 24-hour excre-

tion of fractionated catecholamines, ruling against pheochromocytoma.

The serum thyroid stimulating hormone level, however, was very low, at 0.05 mIU/mL (normal: 0.25-6.70 mIU/mL); repeat value was 0.12 mIU/mL. Serum total tri-iodothyronine and thyroxine were 5.12 nmol/L (normal: 1.23-3.39 nmol/L) and 178.9 nmol/L (normal: 58-161 nmol/L), respectively (Figure 1). He denied ingestion of exogenous thyroid hormone. I-123 radionuclide scan demonstrated diffuse hyperthyroid uptake (18% at 2 hours, 48% at 24 hours). Antimicrosomal antibodies were negative.

Despite his euthyroid appearance, the above presentation was consistent with diagnoses of primary hyperthyroidism and thyrotoxic periodic paralysis. The patient began a regimen of propylthiouracil (PTU) and did

well until he moved from the area again and neglected to take the PTU. He promptly suffered another episode of muscle weakness with hypokalemia and was readmitted to another hospital. He has since restarted PTU and has had no further episodes.

Discussion

TPP is a rare complication of hyperthyroidism that was first described by Rosenfeld in 1902.⁴ Periodic paralysis occurs in a familial form with autosomal dominant inheritance and with a variety of secondary causes. The clinical presentations are virtually indistinguishable.¹ Every known cause of hyperthyroidism has been associated with the syndrome,⁵ and it remains the most common secondary cause of periodic paralysis.¹ Approximately 90% of the cases have occurred in Oriental patients, with an incidence of TPP in hyperthyroidism of 1.8-1.9%.² However, incidences as high as 34% have been reported in smaller studies.¹

The incidence of TPP in non-Oriental hyperthyroid patients has not been studied as extensively. Information based on 8,972 patients with hyperthyroidism at the Mayo Clinic during a 20-year span demonstrated an approximate incidence between 0.1% to 0.2%.⁶ Some researchers have proposed a genetic preponderance for the disease based on a higher frequency of certain HLA antigens in patients with TPP,⁷ which may explain the Oriental preference. Occurrence in Hispanics has rarely been described.⁸

Despite an increased incidence of hyperthyroidism among women in the general population, thyrotoxic periodic paralysis occurs 12- to 20-fold more often in men, compared to only 3:1 in the familial variety (Figure 2).²

Whereas the onset of familial periodic paralysis is usually in the first two decades, onset of TPP is typically noted between ages 20 and 39.³

Typical episodes of TPP are induced by a high-carbohydrate meal or intense exercise, and progress to symmetrical muscle weakness, paralysis and cramping, with moderate to profound hypokalemia and laboratory evidence of hyperthyroidism. There is no sensory deficit, and mental processes are usually spared unless caused by the effects of thyrotoxicosis.² The degree of paralysis is variable and affects the thighs most severely, making walking and rising from a sitting position difficult.⁹ Flaccid quadriplegia can result in severe cases, and respiratory failure has been reported.⁹ On examination, there often are no clues to the presence of hyperthyroidism, which may antedate the symptoms by several years.¹ Episodes can be provoked in susceptible people by administering glucose/insulin solutions, carbohydrate loading and corticosteroid infusion.²

The most consistent laboratory abnormality in the disorder is hypokalemia,³ often with levels below 2 mmol/L. This represents a transcellular shift, not a true potassium deficit.¹⁰ The exact mechanism by which it is manifested is not entirely known. The presence of hypokalemia, however, is not required for the diagnosis; normokalemia and even hyperkalemia have been reported in all forms of the periodic paralyses.² The differential diagnoses of hypokalemia are summarized in the *Table*.

Thyroid hormone induces increased permeability of skeletal muscle to electrolytes, with influx of potassium into cells. Some investigators have demonstrated high insulin levels after carbohy-

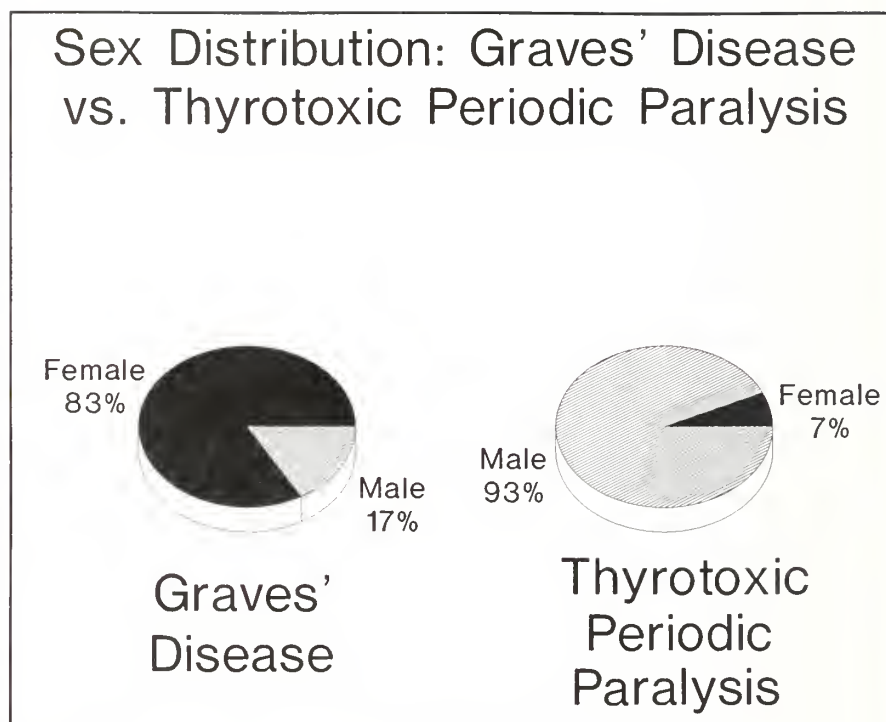


Figure 2.

drate ingestion at the onset of paralysis in some people, which may explain the precipitation of attacks by meals.¹⁰ Abnormalities in sodium and calcium channels also may play an important role.^{2,6}

Cardiac arrhythmias and conduction disturbances have been associated with hypokalemia,¹¹ including ventricular fibrillation.¹² Acute management of the episode includes administering potassium chloride. Relatively small amounts often are needed because there is not a total body deficit. As the paralysis subsides, equilibration occurs, and hyperkalemia may be induced. Therefore, cautious administration of potassium and monitoring of levels are recommended.³

As with hypokalemia, the exact mechanism of muscle paralysis is controversial. Multiple sites in the muscle cell have been postulated in physiologic studies.

Thyrotoxicosis may unmask a latent defect in susceptible people, causing paralysis and, sometimes, a state of catecholamine supersensitivity.² The fact that attacks may be prevented by propranolol may suggest catecholamines as inciting agents. Unique morphologic abnormalities by electron microscopy also have been demonstrated. An exercise test may help identify patients with periodic paralysis; in one application, 71% of those with periodic paralysis exhibited a greater than normal increase in compound muscle action potential amplitude during two to five minutes of intermittent strong voluntary muscle contraction.¹³

Other electromyographical studies have revealed increased action potentials during exercise followed by a greater than normal decrease in amplitude, consistent with a form of periodic paralysis;

this is highly specific for periodic paralysis but does not distinguish primary from secondary forms.⁶

In most cases, attacks are self-limited and often alleviated by rest and administration of small amounts of potassium salts. Chronic administration of potassium, however, may be insufficient in preventing further attacks. Although extremely rare, the possibility of life-threatening arrhythmia and respiratory failure must be considered. Symptoms typically dissipate following establishment of a euthyroid state, which is the only definitive therapy for TPP.² Eliminating symptoms with antithyroid medications and radioactive iodine has been demonstrated.² Sympathetic blockade by propranolol also has been useful in therapy.¹⁴ Avoiding excessive carbohydrate loading and exercise is recommended.

TPP is a rare occurrence in the United States, and unfamiliarity with the disease and its unusual constellation of symptoms may lead to initial errors in diagnosis, as in this patient. It should be considered in any patient presenting with episodic skeletal muscle weakness and hypokalemia. Treatment is definitive, with a high success rate and lack of recurrence. Relapse may occur if antithyroid therapy is not completed. □

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MAJOR CAUSES OF HYPOKALEMIA: DIFFERENTIAL DIAGNOSES

I. GASTROINTESTINAL LOSS

Inadequate intake
Vomiting, diarrhea
Ureterosigmoidostomy

II. EXCESS RENAL LOSS

Mineralocorticoid excess
Primary aldosteronism
Secondary aldosteronism
Malignant hypertension
Bartter's syndrome
Juxtaglomerular Cell Tumor
Licorice abuse
Glucocorticoid excess
(Cushing syndrome, exogenous steroids, ectopic ACTH production)
Chronic Metabolic Alkalosis
Diuretics, osmotic diuresis

Magnesium Depletion
Renal tubular diseases
Renal Tubular Acidosis
Acute Leukemia
Liddle's Syndrome
Antibiotics

Aminoglycosides
Amphotericin B
Carbenicillin

III. E.C.F. TO I.C.F. SHIFTS

Acute alkalosis
Hypokalemic periodic paralysis
Insulin therapy
Vitamin B12 therapy
Barium ingestion

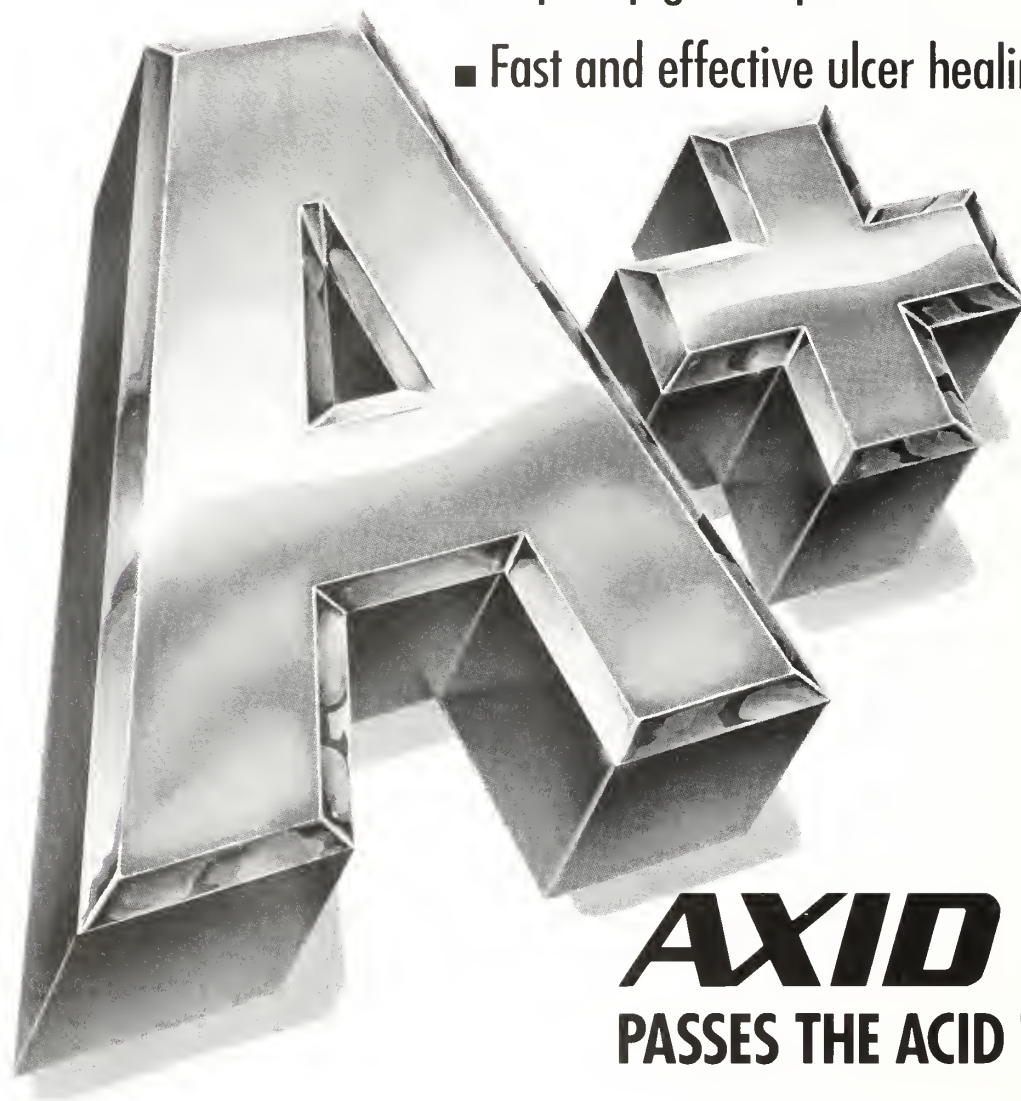
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Brief Summary. Consult the package insert for complete prescribing information.
Indications and Usage: 1. Active duodenal ulcer—for up to 8 weeks of treatment. Most patients heal within 4 weeks.

2. Maintenance therapy—for healed duodenal ulcer patients at a reduced dosage of 150 mg h.s. The consequences of therapy with Axid for longer than 1 year are not known.

Contraindications: Known hypersensitivity to the drug. Because cross sensitivity in this class of compounds has been observed, H₂-receptor antagonists, including Axid, should not be administered to patients with a history of hypersensitivity to other H₂-receptor antagonists.

Precautions: General—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

Laboratory Tests: False-positive tests for urobilinogen with Multistix[®] may occur during therapy.

Drug Interactions: No interactions have been observed with theophylline, chlorazepoxide, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

Carcinogenesis, Mutagenesis, Impairment of Fertility: A 2-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a 2-year study in mice, there was no evidence of a carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a 2-generation, prenatal and postnatal fertility study in rats, doses of nizatidine up to 550 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

Pregnancy—Teratogenic Effects—Pregnancy Category C: Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in 1 fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in 1 fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers: Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

Pediatric Use: Safety and effectiveness in children have not been established. Use in Elderly Patients—Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events were due to the drug.

Hepatic: Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L) in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to 3 times the upper limit of normal, however, did not significantly differ from that in placebo patients. All abnormalities were reversible after discontinuation of Axid. Since market introduction, hepatitis and jaundice have been reported. Rare cases of cholestatic or mixed hepatocellular and cholestatic injury with jaundice have been reported with reversal of the abnormalities after discontinuation of Axid.

Cardiovascular: In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in 2 individuals administered Axid and in 3 untreated subjects.

CNS: Rare cases of reversible mental confusion have been reported.

Endocrine: Clinical pharmacology studies and controlled clinical trials showed no evidence of antihypertensive activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

Hematologic: Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H₂-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumental: Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity: As with other H₂-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

Other: Hyperuricemia, unassociated with gout or nephrolithiasis, was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

Overdose: Overdoses of Axid have been reported rarely. If overdose occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis does not substantially increase clearance of nizatidine due to its large volume of distribution.

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Scleroderma and its manifestations in the hand

Richard S. Idler, M.D.
James W. Strickland, M.D.
James J. Creighton Jr., M.D.
Indianapolis

Scleroderma, also known as progressive systemic sclerosis, remains a perplexing disease. Its cause is unknown, although it probably represents an auto-immune disorder. Vasculitis is a primary component of the pathophysiology of this disease, and its manifestations depend on the organs involved.

The most common presenting symptoms in scleroderma are Raynaud's phenomena, swelling and tightness of the hands and polyarthralgias. Other manifesta-

tions of the disease in the hand include flexion contractures of the digits, subcutaneous atrophy, cutaneous calcinosis and ischemic ulcerations.^{1,5,6} Patients with a symptom complex of calcinosis, Raynaud's phenomenon, esophageal dysfunction, sclerodactyly and telangiectasia fit a pattern known as Crest syndrome.⁴ The more peripheral the involvement in scleroderma, the better the prognosis for survival.

The development of Raynaud's phenomena in scleroderma is one of the earliest manifestations of the disease and is probably a by-product of the vasculitis affecting the arteries of the hand at the level of the palm and digit. In the early stages of

the disease, Raynaud's phenomena can be managed medically with calcium channel blocking agents. Vascular studies in patients with scleroderma show progressive narrowing or occlusion of the proper digital arteries. Common digital arteries are less frequently involved. Narrowing of the ulnar artery may be found in as many as 50% of patients and obstruction of the superficial palmar arch in 10%.⁴ Plethysmography will identify reduced digital blood flow.

The effect of vasculitis produces a progressive concentric intimal proliferation with gradual compromise in circulation.² As the disease progresses, the circulatory system of the hand becomes



Figure 1: Appearance of the hands in end stage scleroderma. Sclerodactyly, fingertip atrophy and cutaneous ulcerations are typical of this disease.



Figure 2: Note PIP flexion contracture and resorption of distal phalanges.

less responsive to calcium channel blocking agents and other techniques of stimulating peripheral circulation, such as sympathetic blockade, digital sympathectomy and cervical sympathectomy. The severity of vascular compromise may be such that ischemic ulcerations occur. These ulcerations sometimes can be managed with local wound debridement and healing by secondary intention. If an acceptable bed can be achieved, the defect can be skin grafted, but the skin graft may be subjected to the pathologic changes of scleroderma.⁴ Healing the ulcerations frequently does little to manage ischemic pain. Chronic nonhealing ulcers and disabling ischemic pain may necessitate digital amputation.³

Sclerodactyly describes digits that are stiff, thin and covered with a waxy appearing skin (Figure 1). These findings reflect the effect of scleroderma on the various tissues comprising the digit. Early in the disease, in association with Raynaud's phenomena, there may be digital swelling and joint inflammation. With time, however, the skin and subcutaneous tissues begin to atrophy. Soft tissue deposits of calcium are not uncommon in scleroderma. This process, known as calcinosis cutis, may be seen in as many as 9% of patients. It most commonly affects adults and usually is limited to the upper extremity, particularly the hand.

Mineral deposits may be carbonate apatite crystals or amorphous calcium phosphate. Attempts at medical management of calcinosis cutis have included dietary phosphate, lactogenic diet, systemic steroids, sodium edetate and diphosphonates. To date, the

medical management of this problem has not had any significant success.⁷

Surgical intervention occasionally is required for cases of painful or chronic drainage. In these situations, excision is frequently subtotal, and recurrences are common. Healing by secondary intention helps minimize the postoperative complications of wound healing. Using a pulsatile lavage sometimes is helpful in debridement of these calcified lesions. Another common finding in digits with sclerodactyly is atrophy of the pulp of the fingertip and associated resorption of the distal phalanx.^{1,6}

Although arthralgias and joint inflammation may be present in scleroderma, the typical joint involvement in this condition is different from that of rheumatoid arthritis. In the early phase of the disease, periarticular osteoporosis and erosions may be found. There may be gradual loss of joint space and associated effusions. There is a gradual increase in collagen formation about the affected joints that leads to joint stiffness and, in the case of the proximal interphalangeal joint, flexion contracture. In the late stages of the disease a stiff, claw hand deformity may occur (Figure 2). Joint fusions are the most effective means to improve this deformity.^{1,4,6}

The hand is commonly involved in scleroderma. Early manifestations of the disease include Raynaud's phenomena, digital swelling and arthralgias. In the later stages of the disease, the digits become atrophic and stiff. Vascular compromise of the digits may lead to painful ischemic ulcers. Calcification of

soft tissues may produce chronic, painful draining wounds.

In the early stages of the disease, surgical intervention may help augment medical treatment of the vascular disturbances of the hand. Debridement and coverage of ischemic ulcerations and debulking soft tissue calcifications also may help. In the final phases of the disease, digital amputation may be required to manage chronic draining wounds and ischemic pain, while joint fusions are the treatment of choice for chronic joint deformities. □

This article is another in a series of monthly articles on hand conditions from The Indiana Hand Center in Indianapolis.

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Maternal mortality in Indiana:

A report of maternal deaths in 1989

William D. Ragan, M.D.
Indianapolis

This is the annual report of the Indiana Maternal Mortality Study Committee. In 1989, Indiana reported eight maternal deaths and 83,201 live births. These statistics give the state a maternal mortality rate of 9.6 per 100,000 births for 1989.

The committee met in open session at Ob/Gyn Grand Rounds at Wishard Memorial Hospital at 8 a.m. June 6, 1990. The function of the Indiana Maternal Mortality Study Committee was reviewed, and updated statistics were presented.^{1,2} Preliminary data on the 1989 deaths were presented. Dr. Ragan presented a paper titled "Maternal Mortality in Indiana 1959 to 1988."

The committee adjourned to the Student Union Building for a closed discussion of the eight 1989 deaths. Each case was presented for discussion, establishment of diagnosis and assignment regarding preventability and responsibility.

The following eight deaths were discussed:

Case 789: Jan. 27, 1989. A 24-year-old married white woman, G4, P2, AB1, 35 weeks' gestation. Death was considered obstetric

and indirect. Cause of death was medical complication and pregnancy: viral infection with DIC.

Case 790: Feb. 1, 1989. A 26-year-old divorced white woman, G2, P1, 38 weeks' gestation. Twin gestation. Death was considered obstetric and direct. Cause of death was embolism (thrombotic).

Case 791: Feb. 12, 1989. A 35-year-old woman, G1, P0, 36 weeks' gestation. Death was considered obstetric and indirect. Cause of death was medical complication and pregnancy: cerebral vascular accident. Probable AV malformation.

Case 792: Feb. 18, 1989. A 23-year-old married white woman, unknown gravidity, 28 weeks' gestation. Death was considered nonobstetric. Cause of death was a medical complication and pregnancy: cardiovascular (myocardial infarction).

Case 793: March 20, 1989: A 26-year-old married white woman, G2, P1, 10 days postpartum. Death was considered obstetric and indirect. Cause of death was a medical complication and pregnancy: cardiovascular (underlying heart disease, probable arrhythmia).

Case 794: July 27, 1989. A 21-year-old single white woman, G5, P4, 36 weeks' gestation. Death was considered obstetric and di-

rect. Cause of death was hemorrhage: placenta percreta, rupture of the uterus.

Case 795: Oct. 3, 1989. A 15-year-old single black woman, G1, P0, 28 weeks' gestation. Death was considered obstetric and indirect. Cause of death was a medical complication and pregnancy: seizure disorder.

Case 796: Dec. 18, 1989. A 29-year-old woman, uncertain gravidity, 20 weeks' gestation. Death was considered obstetric and direct. Cause of death was pulmonary embolism (thrombotic).

Discussion

There appears to be a changing trend regarding the cause of maternal mortality. The time-honored hemorrhage, infection and toxemia have been replaced by embolism, non-obstetric injuries, hypertensive disease of pregnancy, ectopic pregnancy and obstetric hemorrhage in the United States.^{3,4} In Indiana, the leading causes of death are medical complication and pregnancy, hemorrhage, embolism, infection, toxemia and anesthesia.

The leading cause of maternal death in the United States is pulmonary embolism. Thromboembolism remains an enigma because early recognition and

prevention are difficult. There are 10 cases of air embolism in the Indiana statistics. These often are related to oral/genital activity. Education of antepartum patients would help.⁶ Fortunately, amniotic fluid embolism is a rarity. In Indiana, maternal death due to ruptured ectopic pregnancy has not occurred since 1984. Early diagnosis of this condition is now possible with sensitive pregnancy tests, ultrasound and laparoscopy.

Deaths due to toxemia often represent a lack of good prenatal care. Physician education, increased availability of good prenatal care and proper referral may help the pregnant patient with a medical complication. Because AIDS probably will increase among women, more cases of pregnancy-associated deaths due to AIDS will occur.⁷ The rising cesarean section rate in the United States may result in an increase in maternal mortality. At least one article, however, has shown that the risk of maternal death from cesarean section is low.⁸

There is a collaborative effort on the part of the American College of Obstetricians and Gynecologists and the Centers for Disease Control (CDC) in Atlanta to collect data on maternal deaths by states and districts.³ The CDC has initiated a pregnancy mortality surveillance study. The Public Health Service and the U.S. Surgeon General set a goal of no more than five maternal deaths per 100,000 live births by the year

1990.⁹ In the United States in 1985, the maternal mortality rate for all races was 7.8 per 100,000 live births. For white women, the rate was 5.2, and for all other races, it was 18.1. For black women, the rate was 20.4 per 100,000 live births.

The high maternal mortality rate for nonwhite women is a serious problem that must be overcome.¹⁰ Combined efforts by these organizations should provide more meaningful statistics to curtail preventable maternal mortality in the United States. Several recent articles have stated that maternal mortality is one of the most neglected problems in health care in developing countries. Rates are as much as 100 times higher than those seen in industrialized countries.^{11,12}

A "check box" asking if the deceased was pregnant was recently added to the Indiana death certificate to help eliminate missed cases of maternal mortality. Although the death rate from maternal mortality is low, the Indiana State Maternal Mortality Study Committee believes it should continue to investigate and report these deaths for statistical and educational purposes. According to our records, many of these deaths are preventable or have preventable factors. In addition, there are many near misses. We must remain vigilant. □

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Indiana State Medical Association

1991 Annual Convention & Exposition

Friday, Nov. 8
Saturday, Nov. 9
Sunday, Nov. 10

Westin Hotel
Indianapolis

- * House of Delegates
- * Reference Committees
- * Special Session
- * IMPAC Luncheon
- * President's Night Dinner and Entertainment

Abridged schedule of convention events

Thursday, Nov. 7

2:30 – 4:30 p.m. Board of Trustees meeting
6 – 7 p.m. Board of Trustees reception
7 – 10 p.m. Board of Trustees dinner

Friday, Nov. 8

9 a.m. – noon House of Delegates, first session
11 a.m. – 7 p.m. Exhibit hours
1 – 6 p.m. Reference committees
5 – 7 p.m. Reception in Exhibit Hall
8 – 10 p.m. 7th District and 12th District Afterglows

Saturday, Nov. 9

7 – 10 a.m. Board of Trustees breakfast
8 – 10 a.m. Risk management seminar
10 a.m. – noon Medicare update
10 a.m. – 4 p.m. Exhibit hours

Noon – 2 p.m. IMPAC luncheon
2 – 5 p.m. Special session updating ISMA members on "Managed Care Review: Combatting the Hassle Factor," Indiana Compensation Act for Patients (INCAP), and the Indiana Hospital Association's Data Bank program
6 – 7 p.m. President's Night reception
7 – 10 p.m. President's Night dinner
10 p.m. – midnight 1st District and 10th District Afterglows

Sunday, Nov. 10

7 – 9 a.m. Board of Trustees breakfast meeting
9 a.m. – noon House of Delegates, final session
Noon – 1:30 p.m. Trustees organizational meeting

Official call

The House of Delegates of the Indiana State Medical Association will convene at 9 a.m., EST, Friday, Nov. 8, 1991, in Grand Ballroom 5 of the Westin Hotel in Indianapolis.

The House will reconvene for its second (final) session at 9 a.m., EST, Sunday, Nov. 10, in Grand Ballrooms 1–3.

Representation in the House for the 1991 annual meeting will be as follows:

Indianapolis – 37 delegates
Lake County – 14 delegates
Allen County – 10 delegates
Vanderburgh County – 8 delegates
St. Joseph County – 7 delegates
Delaware-Blackford counties – 5 delegates
Owen-Monroe and

Tippecanoe counties – 4 delegates each

Bartholomew-Brown, Elkhart, LaPorte, Madison, Porter, Vigo and Wayne-Union counties – 3 delegates each

Clark, Daviess-Martin, Dearborn-Ohio, Fayette-Franklin, Floyd, Fountain-Warren, Grant, Harrison-Crawford, Howard, Jasper-Newton, Jefferson-Switzerland, Parke-Vermillion and Shelby-Rush counties – 2 delegates each

The remaining 51 Indiana county medical societies – 1 delegate each

Trustees – 15
Past presidents – 17
Resident Medical Society – 4 delegates
Student Medical Society – 4 delegates
Total delegates – 227. □

RBRVS, practice management to be discussed

Information about the resource-based relative value scale (RBRVS) and practice management will be provided during the Medicare Update Program from 10 a.m. to noon Saturday, Nov. 9. Barbara Walker, ISMA reimbursement coordinator, will present the program.

The RBRVS program will include the latest information, and the practice management segment will focus on the "ABCs" of practice management: admitting, billing and collections.

Both presentations will be followed by a question-and-answer session. There is no charge for this program. □

INCAP to be featured in special session

The Indiana State Medical Association will unveil its white paper on "The Indiana Compensation Act for Patients (INCAP)" during a special session at the convention. The special session will include four consecutive programs to be held from 2 to 5 p.m. Saturday, Nov. 9.

The INCAP White Paper, commissioned by the ISMA, explains how Indiana's Medical Malpractice Act has ensured access to quality and affordable medical care for patients since its passage in 1975. It is the source document showing Hoosiers how INCAP has held down the cost of health care while ensuring access to care. The report compares Indiana's favorable medical care

climate to others states, such as Illinois, Michigan and Wisconsin, where physicians have left the state or discontinued services due to the high cost of professional liability insurance. This program will include a discussion of the components of INCAP.

Representatives from the Physicians Insurance Company of Indiana (PICI) will present their views of the medical professional liability climate of both Indiana and the United States. Speakers will include the PICI president and the vice presidents of claims, marketing and finance. Other topics will be PICI's operations, concepts and philosophies and current claims case law developments. A question-and-answer session will follow.

A third program will feature the theme "Managed Care Review: Combatting the Hassle Factor." A representative from the American Medical Association will offer tips on how to deal with peer review organizations.

The final program of the special session will feature Ken Stella, president of the Indiana Hospital Association. He will discuss IHA's data collection activities, including a data bank, patient discharge study and an Indiana Quality Indicator Project. The data collection activities were begun in response to IHA member hospitals' requests for financial and statistical information and will continue through 1992. □

Starlettes to entertain at annual President's Night

Outgoing ISMA president Michael O. Mellinger, M.D., La-Grange, will be honored as part of the annual President's Night reception and dinner Saturday, Nov. 9.

The evening will begin with a formal reception in the foyer outside the Capitol Ballroom from 6 to 7 p.m. sponsored by the Indiana Heart Institute at St. Vincent Hospital of Indianapolis. Dinner and entertainment, sponsored by the Physicians Insurance Company of Indiana, will follow from 7 to 10 p.m. in the Capitol Ballroom.

The Starlettes, who have per-

formed at past ISMA conventions, will perform a variety of popular music for listening and dancing enjoyment. Sisters Mary, Julie and Zanna Mitchell are the Starlettes, Indianapolis vocalists backed up by a five-piece ensemble. They have performed at Indianapolis nightclubs and the Penrod Arts Fair, appeared with the Indianapolis Symphony Orchestra and were the opening act for the Ray Charles show this past summer at Starlight Musicals.

C. Dyke Egnatz, M.D., Schererville, will be installed as ISMA president during the dinner. □

Auxiliary to hold program on breast cancer

The ISMA-Auxiliary will sponsor a discussion on "Breast Cancer - Ask the Experts" Saturday, Nov. 9, from 9:30 to 11:30 a.m. at the Hyatt Regency Hotel. The Hyatt is located across the street from the Westin Hotel, the ISMA convention site.

Linda Smart, with Community Outreach and Health Information of the National Cancer Institute in Washington, D.C., will speak, and a panel of physicians will answer questions about breast cancer.

The auxiliary will have a hospitality area from 10 a.m. to 4 p.m. Nov. 8 and 9 near the ISMA registration desk at the Westin. □

Political columnist to speak at IMPAC luncheon



Chris Matthews

Chris Matthews, a national syndicated political columnist and Washington bureau chief for *The San Francisco Examiner*, will speak at the convention's annual

IMPAC luncheon, set for noon to 2 p.m. Saturday, Nov. 9. "A Look at Health Care from Washington" will be his topic.

Matthews is a frequent panelist on the political talk show "The McLaughlin Group" and served as

political commentator for CBS News during the 1988 presidential campaign. He has served as a staff assistant to the U.S. Budget Committee, presidential speechwriter for former President Jimmy Carter and senior aide to former House Speaker Thomas P. "Tip" O'Neill Jr.

He has received considerable recognition for his political commentary. The *Washingtonian* magazine named him one of Washington's "top 50 journalists." In 1988, *The Washington Post* gave Matthews its Crystal Ball award for what it called his "uncanny" predictions before the presidential election. Matthews predicted not only the winner of the election but

the percentage margin of victory and the results in the electoral college within a single vote.

In November 1990, Matthews became the first person to win the Crystal Ball award twice in a row. He precisely predicted the results in the 435 races for the U.S. House of Representatives and the 36 gubernatorial races and came within a single seat of predicting the results in the 35 U.S. Senate races.

He is the author of *Hardball*, a best-selling handbook on politics.

Matthews is a graduate of Holy Cross College in Worcester, Mass., and attended graduate school at the University of North Carolina in Chapel Hill. □

Commercial exhibitors of the 1991 ISMA annual convention

Computer companies

Medical Accounts Group
RANAC Computer

Consulting firms

Kolbas Consulting Group
Quiring & Associates

Financial institutions

Kimmerling Myers
Merchants National Bank

Governmental agencies

U.S. Army Medical Department

Insurance companies

Farm Bureau Managed Care
Physicians Insurance Company of Indiana
The Medical Protective Company

Laboratory services

The Medical Laboratory

Pharmaceutical companies

Knoll Pharmaceuticals
Eli Lilly-Dista Pharmaceuticals
QMED, Inc.
Summit Pharmaceuticals
Whitby Pharmaceuticals

Miscellaneous

AMNET
Indiana Academy of Family Physicians
Indiana Medical History Museum
Indiana Medical Access and Communications System
Indiana Pork Producers
Visiting Nurse Affiliates of Indiana

This list of exhibitors is not complete because the deadline for reserving exhibit space was after INDIANA MEDICINE press time. □

PICI to present risk management seminar

The Physicians Insurance Company of Indiana will sponsor a risk management seminar from 8 to 10 a.m. Saturday, Nov. 9, to help physicians reduce their risk exposure and insurance costs by practicing effective medical management. Linda S. Mangels, Ph.D., director of the office of risk management for the Texas Medical Association, will conduct the program.

The seminar will offer advice

on how physicians can:

- communicate successfully with patients;
- follow the dos and don'ts of proper documentation;
- communicate effectively with their staff;
- understand the latest trends in plaintiff attorney activities; and
- know the 16 questions that patients want answered.

Those attending will receive two hours of Category 1 CME credit toward the Physicians Rec-

ognition Award given by the American Medical Association, a copy of the book *Jury of My Peers* by Howard Snider, M.D., and the opportunity to qualify for PICI's Preferred Risk Plan, which offers PICI policyholders an automatic 5% premium discount and additional premium credits for those with loss-free experience.

The seminar is \$40 per person and open to physicians only. □

Specialty groups schedule meetings

Several specialty groups have scheduled meetings during the annual ISMA convention at the Westin Hotel.

The Association of Indiana Directors of Medical Education will meet from noon to 2 p.m. Friday, Nov. 8. Charles C. Vincent, M.D., associate professor and director, Department of General Gynecology at Wayne State University/Hutzel Hospital in Detroit will speak on Wayne State's program of preferential admission of medical students from medically underserved areas of Michigan. Those attending will receive one AMA Category 1 Continuing Medical Education credit.

The Saturday, Nov. 9, meeting of the Section on Preventive Medicine and Public Health will feature a program on "New Approaches in Diagnoses and Treatment in Genetics." Joe C. Christian, M.D., chairman of the Department of Medical and Molecular Genetics at the Indiana University School of Medicine, will speak. The schedule includes breakfast at 8:45 a.m., lecture at 9:30 a.m. and a business meeting at 10:30 a.m.

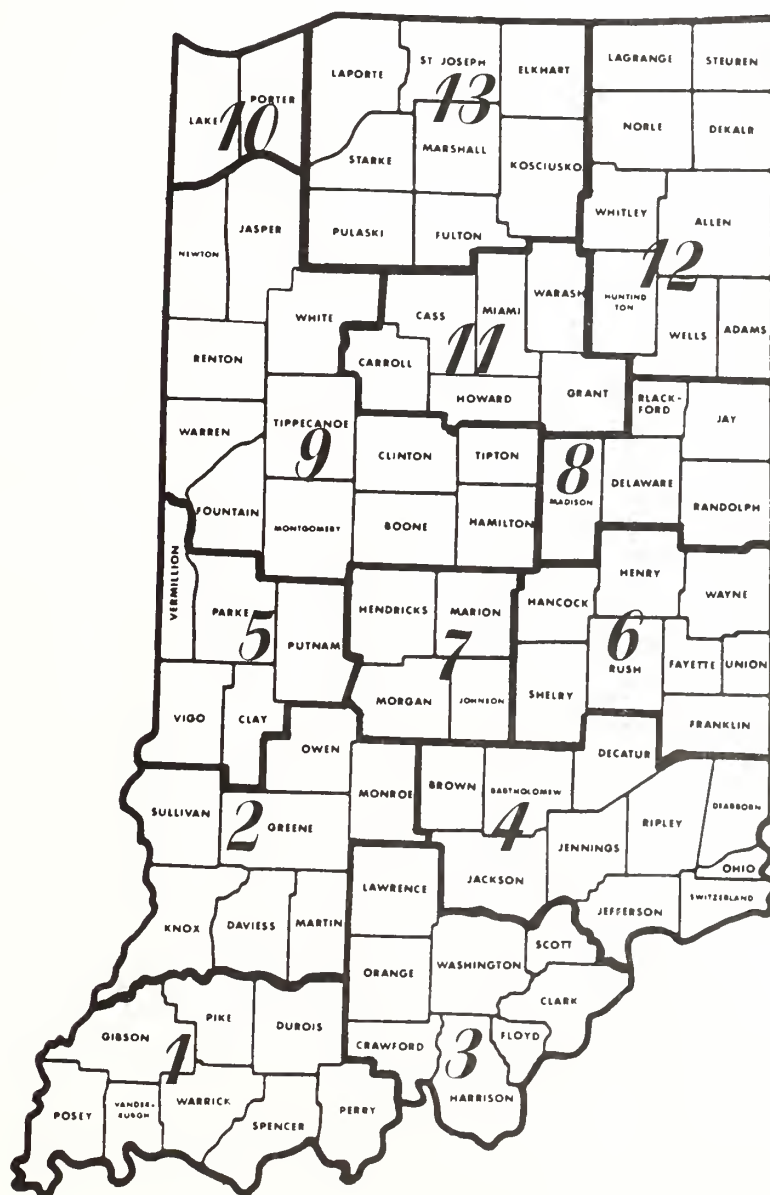
"Rehabilitation Update for the Primary Care Physician" is the theme of the Indiana Society of Physical Medicine and Rehabilitation meeting. The group will meet from 8:30 a.m. to noon Sat-

urday, Nov. 9. Topics of discussion will include the definition of physiatrist, Medicare criteria for inpatient rehabilitation, the Americans with Disabilities Act and office management of musculoskeletal pain.

The Indiana Roentgen Society will meet Saturday, Nov. 9, beginning with an executive meeting at 8 a.m., followed by the general membership meeting at 9 a.m. Ann Wieseneck, associate director of government relations of the American College of Radiology in Reston, Va., will present the program.

The Internal Medicine Society will meet Saturday, Nov. 9, from 7 to 8 a.m. □

ISMA trustee districts





Michael O. Mellinger, M.D., president
Indiana State Medical Association
1990-91

Presidents of ISMA since its organization

Medical Convention

* Livingston Dunlap, Indianapolis

Elected

1849

Served

1849

Medical Society

* William T.S. Cornett, Versailles 1849
 * Ashahel Clapp, New Albany 1850
 * George W. Mears, Indianapolis 1851
 * Jeremiah H. Brower, Lawrenceburg 1852
 * Elhuz H. Deming, Lafayette 1853
 * Madison J. Bray, Evansville 1854
 * William Lomax, Marion 1855
 * Daniel Meeker, LaPorte 1856
 * Talbot Bullard, Indianapolis 1857
 * Nathan Johnson, Cambridge City 1858
 * David Hutchinson, Mooresville 1859
 * Benjamin S. Woodworth, Fort Wayne 1860
 * Theophilus Parvin, Indianapolis 1861
 * James F. Hibberd, Richmond 1862
 * John Sloan, New Albany 1863
 * John Moffett (acting), Rushville 1863
 * Samuel L. Linton, Columbus 1864
 * Wilson Lockhart (acting), Danville 1864
 * Myron H. Harding, Lawrenceburg 1865
 * Vierling Kersey, Richmond 1866
 * John S. Bobbs, Indianapolis 1867
 * Nathaniel Field, Jeffersonville 1868
 * George Sutton, Aurora 1869
 * Robert N. Todd, Indianapolis 1870
 * Henry P. Ayres, Fort Wayne 1871
 * Joel Pennington, Milton 1872
 * Isaac Casselberry, Evansville 1873
 * Wilson Hobbs (acting), Knightstown 1873
 * Richard E. Houghton, Richmond 1874
 * John H. Helm, Peru 1875
 * Samuel S. Boyd, Dublin 1876
 * Luther D. Waterman, Indianapolis 1877
 * Louis Humphreys, South Bend 1878
 * Benjamin Newland (acting), Bedford (v.p.) 1878
 * Jacob R. Weist, Richmond 1879
 * Thomas B. Harvey, Indianapolis 1880
 * Marshall Sexton, Rushville 1881
 * William H. Bell, Logansport 1882
 * Samuel E. Mumford, Princeton 1883
 * James H. Woodburn, Indianapolis 1884
 * James S. Gregg, Fort Wayne 1885
 * Gen. W. H. Kemper, Muncie 1886
 * Samuel H. Charlton, Seymour 1887
 * William H. Wishard, Indianapolis 1888
 * James D. Gatch, Lawrenceburg 1889
 * Gonsolvo C. Smythe, Greencastle 1890
 * Edwin Walker, Evansville 1891
 * George F. Beasley, Lafayette 1892
 * Charles A. Daugherty, South Bend 1893
 * Elijah S. Elder, Indianapolis 1894
 * Charles S. Bond (acting), Indianapolis 1894
 * Miles F. Porter, Fort Wayne 1895
 * James H. Ford, Wabash 1896
 * William N. Wishard, Indianapolis 1897
 * John C. Sexton, Rushville 1898
 * Walker Schell, Terre Haute 1899
 * George W. McCaskey, Fort Wayne 1900
 * Alembert W. Brayton, Indianapolis 1901
 * John B. Berteling, South Bend 1902
 * Jonas Stewart, Anderson 1903
 * George T. MacCoy, Columbus 1904
 * George H. Grant, Richmond 1905
 * George J. Cook, Indianapolis 1906
 * David C. Peyton, Jeffersonville 1907
 * George D. Kahlo, French Lick 1908
 * Thomas C. Kennedy, Shelbyville 1909
 * Frederick C. Heath, Indianapolis 1910
 * William F. Howat, Hammond 1911
 * A. C. Kimberlin, Indianapolis 1912
 * John P. Salb, Jasper 1913
 * Frank B. Wynn, Indianapolis 1914
 * George F. Keeper, Lafayette 1915
 * John H. Oliver, Indianapolis 1916

Elected

Served

* Joseph Rilus Eastman, Indianapolis 1917
 * William H. Stemm, North Vernon 1918
 * Charles H. McCully, Logansport 1919
 * David Ross, Indianapolis 1920
 * William R. Davidson, Evansville 1921
 * Charles H. Good, Huntington 1922
 * Samuel F. Earp, Indianapolis 1923
 * Eldridge M. Shanklin, Hammond 1924

Medical Association

Elected

Served

* Charles N. Combs, Terre Haute 1925
 * Frank W. Cregor, Indianapolis 1926
 * George R. Daniels, Marion 1926
 * Charles F. Gillespie, Seymour 1927
 * Angus C. McDonald, Warsaw 1928
 * Alois B. Graham, Indianapolis 1929
 * Franklin S. Crockett, Lafayette 1930
 * Joseph H. Weinstein, Terre Haute 1931
 * Fverett E. Padgett, Indianapolis 1932
 * Walter J. Leach, New Albany 1933
 * Roscoe L. Sensenich, South Bend 1934
 * Edmund D. Clark, Indianapolis 1935
 * Herman M. Baker, Evansville 1936
 * Edmund M. Van Buskirk, Fort Wayne 1937
 * Karl R. Ruddell, Indianapolis 1938
 * Albert M. Mitchell, Terre Haute 1939
 * Maynard A. Austin, Anderson 1940
 * Carl H. McCaskey, Indianapolis 1941
 * Jacob T. Oliphant, Farmersburg 1942
 * Nelson K. Forster, Hammond 1943
 * Jesse E. Ferrell, Fortville 1944
 * Floyd T. Romberger, Lafayette 1945
 * Cleon A. Nafe, Indianapolis 1946
 * Augustus P. Hauss, New Albany 1947
 * C. S. Black, Warren 1948
 * Alfred Ellison, South Bend 1949
 * J. William Wright, Indianapolis 1950
 * Paul D. Crimm, Evansville 1951
 * William Harry Howard, Hammond 1952
 * Walter L. Porteus, Franklin 1953
 * Walter U. Kennedy, New Castle 1954
 * Elton R. Clarke, Kokomo 1955
 * M. C. Topping, Terre Haute 1956
 * Kenneth L. Olson, South Bend 1957
 * Earl W. Mencil, Indianapolis 1958
 * Guy A. Owsley, Hartford City 1959
 * Harry R. Stimson, Gary 1960
 * Maurice E. Glock, Fort Wayne 1961
 * Donald E. Wood, Indianapolis 1962
 * Joseph M. Black, Seymour 1963
 * Kenneth O. Neumann, Lafayette 1964
 * Eugene S. Rifner, Van Buren 1965
 * G. O. Larson, LaPorte 1966
 * Patrick J. V. Corcoran, Evansville 1967
 * Lowell H. Steen, Hammond 1968
 * Malcolm O. Scamahorn, Pittsboro 1969
 * Peter R. Petrich, Attica 1970
 * James H. Gosman, Indianapolis 1971
 * Joe Dukes, Dugger 1972
 * Gilbert M. Wilhelmus, Evansville 1973
 * Vincent J. Santare, Munster 1974
 * John W. Beeler, Indianapolis 1975
 * Eli Goodman, Charlestown 1976
 * James A. Harshman, Kokomo 1977
 * Arvine G. Popplewell, Indianapolis 1978
 * Alvin J. Haley, Carmel 1979
 * Martin J. O'Neill, Valparaiso 1980
 * John A. Knote, Lafayette 1981
 * George T. Lukemeyer, Indianapolis 1982
 * Lawrence F. Allen, Anderson 1983
 * Paul Siebenmorgen, Terre Haute 1984
 * Shirley Thompson Khalouf, Marion 1985
 * John D. MacDougall, Beech Grove 1986
 * Fred W. Dahling, New Haven 1987
 * George H. Rawls, Indianapolis 1988
 * Michael O. Mellinger, LaGrange 1989
 * Deceased

■ annual reports

Editor's note: The annual reports that were not submitted in time to be included in this issue will be printed in the January 1992 issue of INDIANA MEDICINE.

EXECUTIVE COMMITTEE Michael O. Mellinger, M.D., chairman

The Executive Committee, in response to the ISMA's strategic plan objective of meeting the needs of our members, approved a Practice Management Action Plan. The plan is designed to provide ISMA members and their staffs with educational and training programs to improve the economic efficiency and effectiveness of their medical practices. Actual programming will begin in 1992.

The Commission on Physician Assistance (COPA) continues to be an important addition to the services provided by the ISMA. The program has been further strengthened by the executive committee's approval of a policy and procedures manual. Additional progress was made during the year on development of long-term funding of COPA.

Professional liability continues to be a concern of physicians. Several members of the executive committee attended a media training seminar to assist the ISMA in telling the success story of the Indiana Compensation Act for Patients (INCAP). As this is being written, the INCAP story continues to be told throughout the state.

This was a year when a number of legal and ethical challenges faced medicine. The ISMA presented an oral argument and written brief on behalf of an ISMA member in a case charging the doctor with criminal neglect of a

patient in a nursing home. The ISMA also participated in oral arguments before the Indiana Supreme Court on the issue of whether or not a physician can be held responsible when a patient injures another person as a result of reactions to drugs negligently prescribed. In that case, the court ruled that the doctor could not be held liable. In the Sue Ann Lawrance case, the ISMA filed an amicus brief in support of parental rights to withdraw nutrition and hydration for a dependent child. The ISMA also went on record to oppose the "gag" rule, which applies to abortion counseling in federally funded family planning clinics.

The concern about Youth HIV Education prompted the executive committee to approve ISMA co-sponsorship of a one-day physician workshop. The workshop was part of AMA's Youth HIV Education initiative and was held in Gary July 17. It included presentations by representatives from the state departments of education and health and the Centers for Disease Control.

Another issue that the ISMA has taken a leadership role in during the past few months is the Drug Utilization Review (DUR) program. Under the program, mandated by OBRA'90, all states must implement by Jan. 1, 1993, a DUR program for outpatient prescription drugs reimbursed under the Medicaid program. To comply with this goal, the ISMA formed a DUR technical committee consisting of four physicians who will review and study the information available and make recommendations to the Department of Public Welfare by the end of this year. I would like to thank Debbie Allen, M.D., Richard Reedy, M.D., Ed Ross, M.D., and

John Wernert, M.D., for their work on the DUR technical committee.

BOARD OF TRUSTEES William E. Cooper, M.D., chairman

The Indiana State Medical Association Board of Trustees was active this year in examining the multitude of problems that came before it.

The board gave final approval for the association's move into new headquarters located at 322 Canal Walk in March 1991. This move will allow the staff to have adequate space and facilities to serve the interests of the association with a much greater degree of proficiency and efficiency than could be thought about in the past. I would encourage all colleagues to visit our new headquarters and observe how this change has been accomplished.

Impaired physicians were among board discussion topics. The board set up final negotiations to provide for a qualified physician to serve as the director of the Commission on Physician Assistance. The board is aware of the importance of this commission function and of the steady increase of physicians undergoing treatment under its private auspices.

The board voted Aug. 25 to accept as ISMA policy the Centers for Disease Control guidelines and the American Medical Association policy on HIV/HBV-infected health care workers. A review of these guidelines will be distributed to members through other articles.

The board has discussed and set forth the policy of improving communications with our impor-

tant associates at the Indiana University School of Medicine. The board heard regularly from Dr. Walter Daly, dean of the I.U. School of Medicine, who kept the board informed of the many forces that affect the education of medical students.

The board heard Ken Stella, president of the Indiana Hospital Association, speak on the association's data collection project. The project was in response to the IHA's member hospitals' request for financial and statistical information. The project includes the building of a data bank within the member hospitals regarding patient discharge statistics and an Indiana Quality Indicator Project.

We shall again have to keep up our "guard" when the Indiana legislature meets in January. The ISMA government relations department, directed by Mike Abrams, will keep us apprised of legislation that concerns us, but I would like to remind members to respond – and respond vigorously – when and if legislative alerts are distributed through our alert network. Our ability to respond to issues that affect the quality of care of our patients cannot be diluted. When the call comes, call and write your legislature.

I wish to thank the trustees for the dedication, expertise and experience that they bring to the board. They represent you, the individual members. Please let them and their alternates know how you feel on issues.

I wish to thank Rick King, our executive director, and his staff, who continue to do exemplary work on behalf of the members of the Indiana State Medical Association.

AMA DELEGATION

Marvin E. Priddy, M.D.,
chairman

I thank the members of our delegation for their dedication and effort in maintaining Indiana's active role at the AMA House of Delegate meetings:

Delegates

Alvin Haley, M.D., Indianapolis
John Knot M.D., Lafayette
George Lukemeyer, M.D.,
Indianapolis
Pete Petrich, M.D., Attica
Herbert Khalouf, M.D., Marion

Alternates

Max Hoffman, M.D., Covington
William VanNess II, M.D.,
Summitville
Shirley Khalouf, M.D., Marion
Ed Langston, M.D., Indianapolis
John MacDougall, M.D., Beech
Grove
Richard Reedy, M.D., Yorktown

Interim meeting

With 435 delegates seated, the AMA House of Delegates met in Orlando, Fla., Dec. 2-5, 1990, with 194 resolutions and 106 Board and Council reports to consider. C. John Tupper, M.D., AMA president, presented a mid-year report on the association's achievements in the last few months of 1990 including:

- AMA's leadership role in the development of practice parameters as a way of improving the quality of care our patients will receive;
- AMA's proposal to extend quality medical care to everyone through Health Access America; and
- the stance of the Council on Ethical and Judicial Affairs on such vital issues as the physician's duty to treat HIV patients, with-

drawal of life support and other public health and public education issues.

Board and council reports approved by the House addressed the following: 1) guidelines for physicians' acceptance of gifts from industry; 2) reviews the use of animals in medical education, including the policies of many medical schools and national organizations. The Council on Scientific Affairs reaffirmed the necessity for humane treatment of experimental animals used in medical education; 3) providing health care services and the shortage of physicians in rural areas; and 4) PRO Quality Intervention Plan and the procedures for PRO notification of quality problems.

Board of Trustees Report RR (AMA 1990 HIV Policies), wherein the board repeated its intent to regularly monitor the course of the epidemic and assess developments that require an appropriate response, was of particular interest. Report RR addressed the issues of HIV-infected health care workers, prisoner testing, immigration and travel restrictions, payment for therapies and criteria for benefits, confidentiality, contact tracing and partner notification.

Other House action included adoption of resolutions related to:

- the reaffirmation of the AMA's ethical position in opposition to physician participation in legally authorized executions;
- COBRA patient transfer provisions;
- physicians called to military service;
- reimbursement for electrocardiogram interpretation (OBRA 1990);
- the elimination of drug abuse by the year 2000;
- residency/fellowship work-

■ annual reports

ing hours and supervision; and

- the National Practitioner Data Bank.

Annual meeting

The 1991 annual meeting was held June 23 through 27 in Chicago with 442 voting delegates and 106 reports and 263 resolutions for consideration.

A wide variety of socio-economic, scientific and public health issues was considered. The New Medicare Physician Payment System (RBRVS) was reviewed, and the House adopted the following policies to strengthen the AMA's advocacy efforts and maintain a leadership role in payment reform:

- that the AMA reaffirm its policies in support of an RBRVS-based Medicare indemnity payment schedule. However, failing appropriate adjustments in the RBRVS payment methodologies for Medicare, the AMA Board of Trustees be given the authority to withdraw AMA support of implementation of the RBRVS.

- that the AMA strongly oppose reductions in the payment schedule conversion factor due to volume offset assumptions and spending increases resulting from the transition formula.

- that the AMA carefully evaluate and use caution in support for any wider program use of either the RBRVS or the new Medicare physician payment system until the conversion factor reductions are reversed and until there is an acceptable level of Medicare experience with this new system; and that the AMA produce a current evaluation of RBRVS and the new Medicare physician payment system to ensure that reimbursements for physicians are equitable, appropriate and adequate, with a report back

at the 1991 Interim Meeting.

- that the AMA oppose any further public program use of either the RBRVS or the new Medicare physician payment system until the conversion factor reductions are reversed and until there is an acceptable level of Medicare experience with this new system.

- that the AMA embark on a major campaign (the Payment Reform Education Project) to educate physicians and their organizations about the new Medicare payment system, and that the Board report back to the House on its status at the 1991 Interim Meeting.

Delegates debated the issue of AIDS testing, which received widespread attention from the public media. The House adopted important policy positions regarding routine HIV testing, testing for health care workers and patients and testing for prisoners:

- Hospitals, clinics and physicians may adopt routine HIV testing based on their local circumstances.

- Routine HIV testing should include appropriately modified informed consent and modified pre-test and post-test counseling procedures.

- All negative test results should be provided in a confidential manner accompanied by information on the meaning of these results and the offer, directly or by referral, of appropriate counseling.

- All positive HIV results should be provided in a confidential face-to-face session by a professional properly trained in HIV post-test counseling.

- State medical associations should be encouraged to review and seek modification of state laws that restrict the ability of

hospitals and other medical facilities to initiate routine HIV testing programs.

The House of Delegates adopted a resolution that:

- supports HIV testing of physicians, health care workers and students in appropriate situations;

- supports the position that HIV testing be done on physicians, other health care workers, and patients consistent with testing for other infections and communicable diseases; and

- encourages education of patients and the public about the limited risks of iatrogenic HIV infection.

The policy for testing prisoners for HIV infection and tuberculosis is as follows:

- Testing for HIV infection and tuberculosis should be mandatory for all inmates in federal and state prisons.

- During incarceration, prisoners should be tested for HIV infection as medically indicated or upon their request.

- Testing for HIV infection and tuberculosis should be mandatory for all prisoners within 60 days of their release from prison.

Indiana submitted a resolution titled Involvement of State Medical Societies in Medicaid Drug Utilization Review (DUR) Activities by state medical societies that was adopted by the House and requires the AMA to:

- strongly encourage each state medical society to work with other interested parties within their state to ensure that the Medicaid Drug Utilization Review (DUR) is cemented in medical standards by assisting in the development of the state Medicaid DUR; and

- urge state medical societies to report the progress of the ac-

tivities of the state medical society in the development of the Medicaid DUR to the AMA Board of Trustees by November 1991 and May 1992.

The House elected John Clowe, M.D., New York, president-elect; Daniel Johnson Jr., M.D., speaker of the House; and Richard Corlin, M.D., California, vice speaker. Indiana continues to be represented on two AMA Councils: John Knotte, M.D., on the AMA Council on Medical Service and George Lukemeyer, M.D., on the AMA Council on Medical Education.

The entire delegation works diligently at each AMA meeting to voice the Indiana perspective on vital issues affecting Hoosier physicians and the delivery of health care in the state. If you cannot attend the meetings, you can be assured that you are represented through your delegation. Let us know your opinions!

RESIDENT MEDICAL SOCIETY Rick Robertson, M.D., president

This has been a year of change for the Resident Medical Society. Several past executive committee members, including Drs. Mike Litwiller, Jim Lutz and Past President Lynn Witty, have moved to private practice or fellowships. Several new members to the executive committee promise new ideas and enthusiasm: Drs. Jared Jones and Clint Myers, recruited during Dr. Witty's presidency; Carla Brumbaugh, M.D., past president of the Medical Student Society; and Dan Mejer, M.D., from the Indiana University Medical Center.

During the past year, the RMS: 1) helped arrange Practice Management Seminars for resi-

dents with the help of Fringe Benefit Planners, Indiana National Bank and Kimmerling Myers; 2) co-sponsored the annual "Starting Your Practice Workshop" with the Indiana Academy of Family Physicians and Nasser, Smith & Pinkerton Cardiology; 3) distributed posters to all residency programs at IU with addresses of congressmen and information concerning the student loan deferment issue; 4) sent full delegations to the AMA annual and interim meetings where delegates actively participated in reference committee and House of Delegates discussions; 5) produced quarterly issues of *Vital Signs*, the RMS newsletter; 6) sent representatives to various commissions of the ISMA, such as the Commission on Physician Assistance; 7) sent representatives to legislative receptions and fundraisers; and 8) mailed membership recruitment packets to all of the first-year residents in the state.

At the June executive committee meeting, the purpose and future goals of the RMS were discussed. The primary purpose of the organization has been to represent resident interests at the local, state and national levels. Current work hour reform is an example of resident activity. A second purpose, while not new, is becoming increasingly important. Since medicine and politics are no longer separable, it is essential that residents be exposed to the political process and that a training ground be established for future leaders of the ISMA and AMA. Because the political system will dictate how we practice medicine, our first priority will continue to be to recruit new members and to encourage our members to participate in the political process. There is

strength in numbers.

To accomplish our goal we have contacted new residents and provided educational seminars to increase exposure. The Student Medical Society is another new area of focus. Our plan includes: 1) making phone calls to previously active members; 2) having a pizza party to encourage their involvement; 3) having a pizza party for newly matched residents; and 4) working more closely with them in proposing resolutions for the ISMA annual convention.

In conclusion, the RMS remains healthy and plans to grow. We thank the ISMA for its continued support. Special thanks go to Denise Le Doux and Rosanna Iler for their help throughout the year.

PHYSICIANS INSURANCE COMPANY OF INDIANA M. David Duncan, president and CEO

Physicians Insurance Company of Indiana (PICI) is working closely with the ISMA to maintain a stable medical professional liability climate and to assure Indiana physicians of high-quality insurance protection.

Essentially, long-term stability will require effective medical malpractice laws, reduction of physicians' risk exposure, elimination of unwarranted claims and lawsuits and responsible operating philosophies and concepts on the part of medical malpractice insurers.

PICI strongly supports and assists the ISMA in resisting efforts to alter Indiana's current medical malpractice laws, which give our state a relatively favorable environment as compared with most other states. PICI is

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equally committed to actions that will accomplish the other vital objectives outlined above.

An increasing number of reliable statistical reports indicate that certain medical risk management procedures and techniques will reduce the incidence of medical malpractice claims and lawsuits. Many involve activities that correlate to the actual provision of medical treatment (i.e., office procedures, record keeping, communications and physician-patient relationships). Others involve using certain medical equipment and practice parameters developed by medical specialty societies or similar highly qualified medical sources.

During 1991, PICI conducted more than 25 risk management seminars at various locations throughout Indiana to provide this information to physicians and medical staff members. The practical value of information disseminated at these seminars establishes a sound basis for offering participating physicians a significant premium discount. Participating PICI policyholders also become eligible for premium discounts for loss-free experience, which reflects the effective utilization of proven risk management procedures and techniques.

Concurrently, PICI has developed an innovative rating process for medical groups that permits potentially substantial premium discounts based on a detailed analysis of the group's total risk exposure, existing risk management programs and procedures and characteristics of the group practice.

This enlightened approach to the pricing of medical professional liability insurance for physicians in individual or group practice is far from commonplace and re-

flects the unique effectiveness of PICI's organizational structure, operating philosophies and objectives. Because the ISMA is the majority owner of PICI and the board of directors and various committees are composed of Indiana physicians, the operations of the company reflect the needs and desires of Indiana physicians in a manner that also assures the company's long-term fiscal stability. This includes PICI's well-established opposition to unwarranted claims, an operating concept strengthened by the contractual obligation to settle claims only with the written consent of the insured physician.

Indiana physicians are well aware that health care, nationally and within our state, is experiencing a period of rapid and potentially radical change. All of the current and expected developments and trends relate to a physician's professional liability. This trend includes the growth of managed health care, technological advancements and the proliferation of cost containment and control programs that confront physicians, hospitals and other health care practitioners.

While PICI develops coverage and service concepts that respond to these and other new challenges, attempts to alter Indiana's existing medical malpractice laws will continue. There will be pressure to increase potential awards for plaintiffs and to encourage the participation of plaintiff attorneys on behalf of allegedly injured patients. PICI will join forces with the ISMA to vigorously oppose proposed legislation that would be detrimental to Indiana physicians and their patients.

Maintaining a favorable medical professional liability environment may serve to encourage out-

of-state insurers to enter the Indiana marketplace. These potential insurers, as their counterparts in the past, may not have a long-term commitment. Their operational philosophies may or may not reflect the best interests of Indiana physicians.

We encourage and urge dialogue among all Indiana physicians concerning trends and developments in medical professional liability. We especially appreciate dialogue with members of the PICI Board of Directors and ISMA leadership so we can respond effectively.

As the practice of medicine becomes more complex, challenging and demanding, so do the responsibilities of medical professional liability insurers.

PICI and the ISMA are determined that Indiana physicians will not be short-changed in receiving the quality of protection and services they deserve and require.

SECOND DISTRICT

Jerome Melchior, M.D., trustee

It has been a privilege to represent the ISMA Second District this year. Our annual meeting was held at the Washington (Ind.) Country Club May 9. James Beck, M.D., alternate trustee, did a superb job organizing the meeting. The turnout was good, but it is a shame that more of our members did not participate in this meeting.

We hope to have a leadership meeting with the other Second District County Society presidents and secretaries. Perhaps this interchange of ideas will bring some solutions for our common problems.

Direct contact with ISMA field

representative Janna Kosinski has helped in the district. Her visits to hospital lounges have stimulated many discussions with physicians that have led to solutions to their problems. She has been able to put physicians in direct contact with the ISMA department that can help them with problems. Her knowledge is a great asset in the smaller communities, and I believe it should be continued.

FOURTH DISTRICT **William E. Cooper, M.D.**

The Fourth District Medical Society held its annual meeting May 1 at the Seymour Country Club. Approximately 100 physicians and spouses attended the meeting. The format included a brief report from the leadership of each county in the district. This format was informative, and I suggest it be continued at the next district meeting scheduled for May 1992 at the Harrison Lake Country Club in Columbus.

As we all know, the malpractice surcharge was raised to 150% of policy payment because of increased litigation against the fund during last year. The insurance commissioner has hired four lawyers who are investigating the legality of claims against the fund. The Physicians Insurance Company of Indiana (PICI) has now insured 2,400 physicians and offers a variety of plans for residents. I encourage all physicians to look into PICI's services. PICI, a valuable resource and friend of ISMA, has provided \$845,000 to the ISMA in non-dues revenue since its inception. That figure should increase to \$1 million by 1992.

I am pleased to announce that the ISMA headquarters moved to

322 Canal Walk in downtown Indianapolis. This move will streamline the ability of the association to lobby in the state legislature with greater efficiency and to conduct business in a facility that affords ample room for equipment and personnel.

I caution you to be aware of further incursion against the Indiana Malpractice Act. Although an agreement not to change the act was made, we must keep our guard up. The ISMA Governmental Relations Department, under the leadership of Mike Abrams, will keep on top of issues, but we in the trenches must be able to respond to legislative alerts. The legislative alert system works, but we need your help.

I thank Janna Kosinski for her fine field representative work in the Fourth District. Her work and attention to detail are greatly appreciated. Kathy Edwards and Janice Sells also are appreciated for their help throughout the years.

SIXTH DISTRICT **C.G. Clarkson, M.D., trustee**

This year's annual meeting was held at the Connersville Country Club May 8. The day began with a golf tourney in the morning, and the ISMA Executive Committee met in the afternoon. The meeting began at 7 p.m. under a new format. Steven Dillinger, M.D., president of the Sixth District, presided. Robert Maitlen, M.D., vice-president, presented the status of the budget.

District officers were elected after introductions were made. Dennis Roberts, M.D., was elected president for next year, and Dr. Maitlen was elected president-elect. William Toedebusch, M.D.,

was elected secretary/treasurer. Ray Haas, M.D., alternate trustee, was elected trustee for the next three years. He will replace C.G. Clarkson, M.D., who is serving his last term as trustee. Howard Deitsch, M.D., was elected alternate trustee to fill the unexpired term of Ray Haas, M.D..

Next year's meeting will be held at the Forest Hills Country Club May 13, 1992.

A panel of the county medical society presidents was called to discuss the problems and concerns of each county. The format and discussion were enlightening. Dr. Dillinger presided throughout the dinner. During the dinner, each dignitary presented a brief discussion concerning his activities.

Again this year, I was elected from the Board of Trustees to serve on the Executive Committee. I have enjoyed working with this committee and the privilege of serving as your trustee. I thank Dr. Haas for his role as alternate trustee. I encourage you to tell him your concerns.

As an involved trustee, I would like to recommend that the district establish a format to obtain more participation in the district meetings. The district meetings should be held in a central location on a repetitive basis. The county presidents, along with the trustee and alternate trustee, should have a dinner meeting two or three times a year to discuss district matters.

I commend the work of Bob Sullivan as field representative. He has been very diligent in attending county society meetings and visiting the local hospitals. He has answered questions, relayed important concerns to the ISMA membership at large and helped organize the district meet-

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ings. He has been very informative concerning legislative issues.

I congratulate Dr. Haas as next year's trustee and Dr. Deitsch as alternate trustee. Please communicate with them and give them your support.

SEVENTH DISTRICT

Donna J. Meade, M.D., Peter L. Winters, M.D., and John L. Records, M.D., trustees

Each year, our reports are marked by the changes and challenges we attempt to address as your elected representatives. This year has been no different, but it has been unique.

As we settled in to a new year, challenges remained. Four county societies comprise the Seventh District. Marion, obviously the largest, is joined in the district by the societies in Hendricks, Morgan and Johnson counties. Levels of participation have been as varied as the communities are diverse. We are grateful that John Records, M.D., trustee, and Charles McCormick III, M.D., president, have worked to encourage and assist Morgan County in renewing their activity in organized medicine.

While each of your trustees has played various roles in ISMA affairs, the work of others cannot be ignored. We must first pay tribute to Johnson County and Seventh District member Merrill "Max" Wesemann, M.D., for his years of service and stewardship as assistant treasurer and treasurer of the ISMA. Although he chooses not to continue, we must not forget the valuable contributions he made through a steady hand and constant awareness of the association's finances.

In the last House of Delegates,

we elected William Beeson, M.D., as the 1991 Speaker of the House of Delegates. During the sessions of the House, Dr. Beeson demonstrated his ability to chart a course through troubled waters and confirmed our belief in his leadership abilities. We also should note that Peter Winters, M.D., has served the Seventh District faithfully as an at-large member of the Executive Committee.

During this year, the Seventh District trustees travelled to Washington, D.C., to lobby for medical issues. Last April, four Congressional offices were visited, and we were well-received. The trustees urge you to write to our Congressmen and state legislators this year in anticipation of the attack from the trial lawyers on the patients compensation act.

Many other district members contributed their talents this year. We appreciate the support and participation of our alternate trustees, Ron Blankenbaker, M.D., Bernard Emkes, M.D., and Dr. McCormick. "They also serve who only stand and wait" and who are truly prepared.

The Seventh District meeting, for the first time in history, was held at a site outside of the district. Our evening at Conner Prairie allowed us to appreciate our past and the knowledge we have acquired. More than 150 members, their families and guests enjoyed the evening. With District President Dr. McCormick presiding, Dr. Winters was elected to his first full term as a trustee, and Dr. Blankenbaker was elected to his first full term as alternate trustee. Ron Stegemoller, M.D., of Hendricks County was chosen president-elect to succeed Dr. Emkes, who will serve as president.

EIGHTH DISTRICT

John V. Osborne, M.D., trustee

The Eighth District held its annual meeting June 5 at the Delaware Country Club. The social aspects were hosted by the Jay County Medical Society, and the business meeting was chaired by Kathleen Galbraith, M.D., Eighth District president. Reports were given by each county president, John V. Osborne, M.D., district trustee, and several state officers.

Susan Pyle, M.D., of Union City was re-elected as the alternate trustee. Dr. Osborne gave the financial report.

Discussion included the quarterly meetings of county officers in the district. The meetings will continue so our trustee and alternate trustee know how the counties feel about ISMA activities. The trustee and alternate trustee also attend county meetings to keep abreast of the wishes of the district members.

Carl Andrews Jr. entertained the group with a magic show. Golf awards and door prizes were presented.

Madison County will host next year's meeting at the Anderson Country Club on the first Wednesday in June.

NINTH DISTRICT

Stephen D. Tharp, M.D., trustee-elect

The ISMA Ninth District is pleased to continue the tradition of camaraderie and service to its members. Under the expert leadership of R. Adrian Lanning, M.D., the Ninth District hosted its annual meeting in Frankfort June 12.

In a dramatic break from previous meetings, the Ninth District

hosted an evening of dinner and theatre centered around Neil Simon's "Rumors," presented by the Red Barn Theatre. With such an appealing program, we drew a record number of physicians and auxiliaries to the annual meeting.

Lest our roots not be forgotten, our business meeting produced a lively discussion regarding the philosophy of medicine and the role of the ISMA and the Ninth District in promoting quality care and a proper environment for the practice of medicine.

The district reluctantly accepted Dr. Lanning's decision to decline the nomination to continue as trustee of the Ninth District. Stephen Tharp, M.D., was elected trustee, and Timothy Brown, M.D., was elected alternate trustee.

We thank Dr. Lanning for his many years of generous service to the ISMA and the Ninth District in particular. We hope to carry on the tradition that such a fine record of tireless service has given us.

TENTH DISTRICT

Nicholas L. Polite, M.D., trustee

I am pleased to report that the annual meeting of the Tenth District was a success. Almost 300 people attended the meeting. The keynote speaker was Gov. Evan Bayh. The meeting was successful due to the efforts of many: the trustee, alternate trustee, Tenth District officers, officers of the component members of the Tenth District, the auxiliary and the ISMA. The governor was well-received, although his message was disappointing.

Before the June annual meeting, the Tenth District held several planning meetings for the Tenth

District annual meeting.

Elections were held during the annual meeting. Frank Sturdevant, M.D., was re-elected alternate trustee. Phil Lopez, M.D., was elected president, and Barron Palmer, M.D., was elected secretary/treasurer.

Throughout the year, the Tenth District sent several mailings regarding Medicare/Medicaid issues and pending state legislation.

This year, we converted the *Lake County Medical Society Bulletin* into the *Tenth District Medical Society Bulletin*. The bulletin now contains information for both Lake and Porter counties. It brings the societies closer together while recognizing and maintaining their uniqueness and independence.

As a district, we are proud to have an ISMA president from our area next year.

For 1991-1992, we anticipate more district-wide activities. Legislative efforts will be a primary concern since we expect a threat on the medical liability statute and continuing Medicare restrictions. As a district, we must pursue our joint efforts in this regard.

ELEVENTH DISTRICT

Jack W. Higgins, M.D., trustee

The Eleventh District held its annual meeting Sept. 19, 1990, at Grissom Air Force Base. Miami County served as hosts, and James Duncan, M.D., conducted the meeting. ISMA leadership also attended the meeting.

Alan Crebo, M.D., was elected president, and Fred Pohler, M.D., was re-elected secretary/treasurer. Jack Higgins, M.D., was re-elected trustee. Daniel H. "Stormy" Johnson, M.D., vice-speaker of the

AMA House of Delegates, was the program speaker.

The 1991 meeting was held in September in Howard County. All Eleventh District members were encouraged to attend the meeting, as well as the ISMA annual convention Nov. 8-10, 1991, in Indianapolis. Your input and participation is vital to the success of ISMA, AMA and the entire medical profession.

I have not attended local county society meetings because of the time restraints of a busy practice. I intend to make every effort to attend local county meetings. I am always available by phone.

A planning meeting was held in April for the annual district meeting. It was not well-attended. Only Grant, Howard and Wabash counties were represented. We will continue to hold a planning meeting in March or April each year. County society leadership and their spouses are invited. Please try to have at least one representative from each county next year.

Larry Musselman, M.D., alternate trustee, and I thank the members of the Eleventh District for allowing us to serve them.

TWELFTH DISTRICT

John R. Thomas, M.D., trustee

The Twelfth District annual meeting format was changed to a golf outing at Sycamore Hills Country Club Sept. 19, 1991. A business meeting followed the golf outing. Medical society presidents reported their societies' events during the past year. A dinner at Sycamore Hills Country Club followed the business meeting. Joseph Talley, M.D., a family practitioner in North Carolina, was

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our speaker.

Charles Frankhouser, M.D., alternate trustee, proposed that all offices of the district be elected by ballots mailed to the entire membership rather than by the members who attend the annual meeting. The proposal, which was to be discussed at the Sept. 19 district meeting, allows the entire membership to vote for officers, allowing the involvement of all members.

Twelve people attended a dinner meeting for medical society presidents and their spouses Nov. 28, 1990. The district meeting and the annual meeting were discussed.

It was an honor to represent the Twelfth District as trustee. I have enjoyed the opportunity to serve in this capacity.

THIRTEENTH DISTRICT **Alfred C. Cox, M.D., trustee**

The annual meeting of the Thirteenth District was held Sept. 11 at the Pottawattomie Country Club in Michigan City. Members enjoyed golf and shopping at the Lighthouse Place Outlet Mall before the afternoon business meeting, directed by District President Mark Ballard, M.D., of LaPorte. President-elect David Haines, M.D., of Warsaw invited the district to attend the 1992 meeting at Stonehenge Country Club in Warsaw. John Schurz, M.D., of South Bend presented the treasurer's report.

District members enjoyed the dinner and the jazz sounds of The Jeff Brown Trio.

I thank Richard Houck, M.D., of Michigan City for his help and support as alternate trustee. Our attendance at the Board of Trustees' meetings allows for continued

representation of the Thirteenth District.

COMMISSION ON CONSTITUTION & BYLAWS

Helen Geyer Czenkusch, M.D., chairman

The commission's business this year consisted of implementing revisions to the bylaws according to House approval of Resolution 90-6 (Advance Scheduling for Convention) and Resolution 90-36 (Extension of Eligibility for Health Insurance for Physicians with Suspended or Revoked License).

Resolution 90-16 (Future Planning Committee and Commission on Convention Arrangements) was referred from the House to the ISMA Board of Trustees for its disposition. At its March 13 meeting, the Board reviewed the purposes and performances of this committee and commission and determined that they do not serve the present needs of the association. Their duties and responsibilities have been absorbed and met administratively by other functioning bodies. The Board authorized that the bylaws be appropriately amended by deletion to reflect the termination of this committee and commission.

Resolution 89-3 (Medical Student Representatives on the Board of Trustees) received its second vote of approval by the 1990 House, amending Article VII of the Constitution.

The revised ISMA Constitution and Bylaws, reflecting amendments to Article VII of the Constitution and Sections 1.0303(c), 3.0101 and 7.00 of the Bylaws, is presented to this 1991 House.

COMMISSION ON SPORTS MEDICINE

Ronald G. Blankenbaker, M.D., chairman

The Commission on Sports Medicine continues to encourage good health and physical fitness through safe, effective sports activities in school, recreation and amateur athletic programs. We met bimonthly this year, except in March because of the Gulf War.

The principles of good nutrition for young athletes remain of interest to the commission. We are working with a local expert to create new educational materials to distribute to schools. This material should help dispel some of the myths about nutrition.

We continued to strengthen our relationship with the Indiana Governor's Council on Physical Fitness and Sports Medicine by exchanging regular reports. We also have co-sponsored with the council several events related to youth fitness and safe sports.

The commission is concerned about the potential legal liability for physicians who cover team sports. After considerable research, we recommend an article be published in *INDIANA MEDICINE* to educate our members on how to protect themselves.

Randall Morgan, M.D., has continued his efforts to organize sports medicine symposia throughout the state. These educational conferences are designed to educate physicians and professionals who are involved with the care and prevention of sports injuries. We thank Dr. Morgan for his leadership and commitment to this endeavor.

During the past year, the commission has addressed other issues including: drugs in athletics, especially anabolic steroids; regu-

lations regarding the use of splints/casts; eye injury and protection; football injuries; protective helmets and face guards for baseball; and legislation affecting the practice of sports medicine. ISMA members should refer other issues of concern to the commission for review and resolution.

I thank the commission members and members of the Technical Advisory Committee for their time and energy.

GRIEVANCE COMMITTEE

Richard B. Schnute, M.D.,
chairman

The Grievance Committee, consisting of Max Hoffman, M.D., John Pless, M.D., Anthony Pizzo, M.D., and Freeman Martin, M.D., investigated multiple complaints during the 1990-1991 period and worked diligently to fairly resolve these issues. Complaints included differences of opinion concerning diagnosis and treatment, fees and charges and accusations of improper deportment. Most misunderstandings resulted from inadequate communication or explanations. The committee strongly urges better communication between physicians and patients.

As chairman, I thank the committee members for their participation in resolving these problems.

INDIANA MEDICINE

George T. Lukemeyer, M.D.,
editorial board chairman

Indiana Medicine took on a new look effective with the March 1989 issue. Under the direction of

then-editor, Frank Ramsey, M.D., a comprehensive redesign and conversion to desktop publishing enhanced the attractiveness of the journal.

The Indiana State Medical Association (ISMA) and the Board of Trustees commissioned a readership survey in 1990. The ISMA communications task force carefully considered the readership survey and additional input from multiple sources and submitted its report and recommendations to the Board of Trustees in the summer of 1990. In August 1990, the board accepted the following task force recommendations regarding *Indiana Medicine*:

- Continue *Indiana Medicine* in a magazine format, but publish six times a year (January, March, May, July, September and November) instead of monthly.

- Content of the publication should be changed to contain socioeconomic, practice management, legal, ethical and regulatory articles targeted to the specific needs and interests of physicians. Each topic could be a different "department" of the magazine.

- Include one peer-reviewed article in each issue.

- Editorial board members should peer review submitted scientific articles and should receive a modest honorarium (sum to be determined) for each article to be reviewed.

- An editorial and/or response should be printed in each issue, either submitted or solicited.

- *Indiana Medicine* should continue to publish obituaries, news about members and the Physicians' Directory.

The past year has been a tran-

sitional year in the implementation of the board's policies regarding *Indiana Medicine*. In March 1991, appointments to the editorial board were approved by the trustees. All scientific articles not previously accepted for publication have been reviewed by one or more members of the editorial board to determine acceptability for publication.

The editorial board met at the ISMA headquarters May 1, 1991, and reviewed the 1990 readership survey and the communications task force recommendations. Suggestions for topics in upcoming issues were solicited from editorial board members, and guidelines and standards for review of submitted articles were discussed. Planning started for the 1992 revised content and publishing schedule for *Indiana Medicine*. The editorial board met again Aug. 21, 1991, to consider guidelines for authors, topics for editorials, socioeconomic articles, legal-ethical articles and theme issues for 1992.

The editorial board chairman would like to acknowledge and thank all of the members of the editorial board for their assistance and help in reviewing articles and planning for the future. Tina Sims, managing editor, and Adele Lash, director of communications, have continued to provide superb and dedicated service to *Indiana Medicine*. They have earned my thanks and admiration and deserve your recognition for a job well done.

The editorial board and staff welcome the suggestions, comments or constructive criticism of the members of the ISMA. □

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Status of 1990 resolutions

RESOLUTION 90-1 ISMA Representation at the U.S. Pharmacopeia Convention

Introduced by: Ed Langston, M.D.
Referred to: ISMA Administrative Policy Manual for Inclusion

Status: Completed.

RESOLUTION 90-2 Alcohol-Related Impairment, Education and Legal Implications

Introduced by: Roland Kohr, M.D.
Referred to: ISMA Legislative Department and Communications Department

Status: Collecting data; legislation introduced in 1991 session but did not pass (SB 166).

RESOLUTION 90-3 Local Government Impact

Introduced by: Craig Moorman, M.D., Shelby County Medical Society and Fort Wayne-

Allen County Medical Society
Referred to: Commission on Legislation
Status: SB 617, reorganizing human service agencies, did not include the state board of health. It further clarified that local health departments operate as agencies of local government.

RESOLUTION 90-4 Four-State Agency Merger Plan

Introduced by: Craig Moorman, M.D., Shelby County Medical Society and Fort Wayne-Allen County Medical Society

Referred to: Commission on Legislation
Status: SB 617, reorganizing human service agencies, did not include the state board of health.

RESOLUTION 90-6 Advance Scheduling for Convention

Introduced by: ISMA Executive Committee
Referred to: Commission on Constitution and Bylaws

Status: To be referred to the Commis-

sion on Constitution and Bylaws for implementation.

RESOLUTION 90-7

Introduced by:

Referred to:

Status:

PRO Physician Reviewers

ISMA Members of the ISMA-Sentinel Liaison Committee
ISMA Legal Counsel and Communications Department
Implemented by virtue of a notice that has appeared in *ISMA Reports* and an additional notice in *ISMA Reports* will appear requesting specific physician reviewer volunteers for certain highly needed specialties.

RESOLUTION 90-8

Introduced by:

Referred to:

Status:

Program Funding for the Commission on Physician Assistance

ISMA Board of Trustees
ISMA Policy Manual for inclusion and the ISMA Financial Department
Completed.

RESOLUTION 90-9

Introduced by:

Referred to:

Status:

Medical Liability in Emergency Situations

Lake County Medical Society
ISMA Board of Trustees
Referred to Commission on Legislation for discussion and input with regard to the wisdom of seeking legislation in 1992.

RESOLUTION 90-11

Introduced by:

Referred to:

Status:

IRMIA Rates

Lake County Medical Society
ISMA Legal Counsel and Legislative Department
Staff was advised that the administrators of IRMIA (Medical Protective Company of Fort Wayne, Ind.) and the Department of Insurance annually review all classes of medical malpractice to determine which have the highest risk based on information available to the department. IRMIA rates are then set 5% above the regular rates for

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that class. Determination of actuarial soundness of the 5% penalty would cost approximately \$15,000 to undertake. Resolution did not include fiscal provisions for the study; therefore, the ISMA will continue to monitor this situation.

RESOLUTION 90-13 Seconding Speeches for Nominees
 Introduced by: Fountain-Warren Medical Society
 Referred to: ISMA Administrative Policy Manual for deletion
 Status: Completed.

RESOLUTION 90-14 Unsolicited Test Results
 Introduced by: Indianapolis Medical Society
 Referred to: Commission on Legislation
 Status: Staff is working with state agency representatives to properly implement this resolution.

RESOLUTION 90-15 Nursing Home Patient Rights
 Introduced by: Larry Hughes, D.O.
 Referred to: ISMA Board of Trustees
 Status: Letter sent to resolution author requesting specific scenarios to further demonstrate the intent of the resolution and a more specific indication of what legislative change is being requested and what the author envisions it would empower the physician or medical director to do in the situations presented. Discuss proposal with the Mental Health Association and Indiana Health Care Association.

RESOLUTION 90-16 Future Planning Committee and Commission on Convention Arrangements
 Introduced by: ISMA Executive Committee
 Referred to: ISMA Board of Trustees
 Status: Board approved termination of the Future Planning Committee and Commission on Convention Arrangements at

its March 24 meeting. Commission on Constitution and Bylaws will make the appropriate changes in the bylaws.

RESOLUTION 90-17 Medical Examiner System for the State of Indiana
 Introduced by: Fort Wayne-Allen County Medical Society
 Referred to: Commission on Legislation
 Status: Efforts were made to include funding for the current medical examiner system in the 1991 budget bill. However, during the 1991 special session, the budget passed without this provision.

RESOLUTION 90-18 Review of Medical Licensure Board Operation and Process
 Introduced by: Fort Wayne-Allen County Medical Society
 Referred to: ISMA Board of Trustees and ISMA Legal Counsel
 Status: ISMA is on record with the Medical Licensing Board of Indiana and continues to communicate the belief that summary suspension should be used very sparingly and only in cases where there is overwhelming evidence of a "clear and present danger to the public." In all other cases, the physician should be given an opportunity to be heard before his license is suspended. The staff believes that the medical licensing board agrees with ISMA's position on these matters.

RESOLUTION 90-20 Reaffirmation of Resolution Supporting Testing for Human Immunodeficiency Virus (HIV)
 Introduced by: Fort Wayne-Allen County
 Referred to: Commission on Legislation
 Status: Testing provision: Legislation was again introduced but did not pass. Contact tracing provision: Adopted in HB

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RESOLUTION 90-21 **Emergency Loans for ISMA Student Members and Physicians in Training**
 Introduced by: C. Dyke Egnatz, M.D.
 Referred to: ISMA Board of Trustees
 Status: Intent of resolution is being served appropriately through Indiana National Bank. Creation of a separate ISMA program would duplicate services.

RESOLUTION 90-24 **Customary and Reasonable Charges as Calculated by Insurance Companies**
 Introduced by: Commission on Legislation
 Referred to: ISMA Board of Trustees
 Status: Feasibility study of regulation or legislation for 1992. Report back at the June board meeting for review and action.

RESOLUTION 90-26 **Long-Term Care for Children and Medicaid Payments**
 Introduced by: Commission on Legislation
 Referred to: Commission on Legislation
 Status: Implemented with passage of SB 30 (1991)

RESOLUTION 90-27A **Patient Compensation Awards**
 Introduced by: Howard County Medical Society
 Referred to: ISMA Board of Trustees
 Status: Taken for information and consideration (3/24/91) to be used at an appropriate time.

RESOLUTION 90-28 **Reimbursement - Defense Attorney Fees**
 Introduced by: Howard County Medical Society
 Referred to: ISMA Board of Trustees
 Status: Defer consideration until appropriate time for introduction before the Commission on Legislation.

RESOLUTION 90-29A **Organizational Communications**
 Introduced by: Vanderburgh County Medical Society
 Referred to: ISMA Executive Director, ISMA Legislative and Communications departments
 Status: Ongoing action - periodic calls to county society executives.

RESOLUTION 90-31 **Immunity From Liability for Physicians Volunteering in Indigent Clinics**
 Introduced by: Vanderburgh County Medical Society
 Referred to: ISMA Board of Trustees
 Status: Further study of the issue to its societal implications under our current statutory scheme (i.e., Good Samaritan Act and PL 146).

RESOLUTION 90-32 **Prohibit Physical Punishment in Indiana Schools**
 Introduced by: John Luce, M.D.
 Referred to: Commission on Legislation
 Status: Legislation introduced during 1991 session but did not pass.

RESOLUTION 90-33A **Care With Compassion and Dignity**
 Introduced by: Timothy N. Brown, M.D.
 Referred to: ISMA Board of Trustees
 Status: Policy statements written and added to the ISMA Policy Manual.

RESOLUTION 90-34A **Medicare Volume Performance Standards**
 Introduced by: Timothy N. Brown, M.D.
 Referred to: ISMA Reimbursement Coordinators and AMA Delegation Resolution 150 introduced at the AMA Interim Meeting (December 1990). Substitute resolution 150 was adopted by the AMA house that stated that the AMA continue to seek to modify and influence the MVPS to prevent it from becoming an expenditure

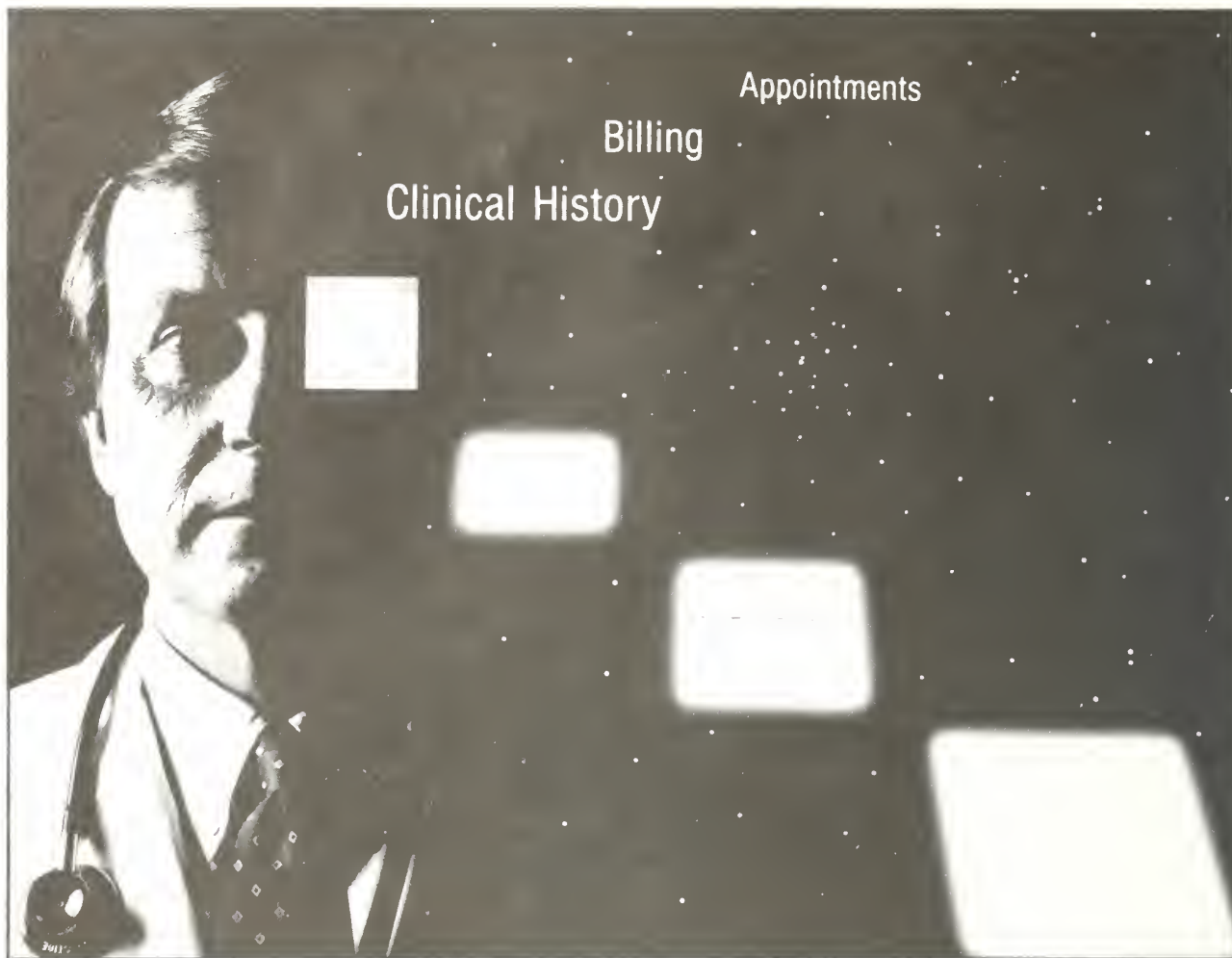
target or cap via either regulation or legislation.

RESOLUTION 90-35 Prescribing Medications to Psychiatric Patients
 Introduced by: Suhayl J. Nasr, M.D.
 Referred to: ISMA Board of Trustees
 Status: Refer to Commission on Legislation for its information and input regarding legislation to correct this problem.

RESOLUTION 90-36 Extension of Eligibility for Health Insurance for Physicians With Suspended or Revoked License
 Introduced by: Subcommittee on Insurance
 Referred to: Commission on Constitution and Bylaws
 Status: To be referred to the Commission on Constitution and Bylaws for implementation.

RESOLUTION 90-37 Laser Surgery
 Introduced by: Indiana Academy of Ophthalmology
 Referred to: ISMA Legal Counsel and ISMA Legislative Department
 Status: The Medical Licensing Board of Indiana has passed the laser surgery rule that implements this resolution. The attorney general has not finalized yet.

RESOLUTION 90-38 Resignation of Inspector General, Department of Health and Human Services
 Introduced by: C. Dyke Egnatz, M.D.
 Referred to: ISMA Communications Department
 Status: Action completed prior to introduction of resolution. Letters were sent to President Bush and U.S. senators and representatives. Videotape disseminated and shown.



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SNAKEROOT E X T R A C T

PUBLISHED BY THE
 INDIANA MEDICAL HISTORY MUSEUM AND
 THE INDIANA HISTORICAL SOCIETY

NUMBER 21

OCTOBER 1991

ANNUAL MEETING TO FEATURE MEDICAL LANDMARKS

Contemporary travelers need not stray too far from their vacation resorts to experience the remarkable stories, interesting characters and fascinating structures which comprise medical history.

"There are places all over the country that contributed to the evolution of health care," notes Dr. Martin R. Lipp, author of *Medical Landmarks USA: A Travel Guide*. "No matter where people go, they can easily integrate medical history into their travels."

Dr. Lipp will explore many of the more than 600 historical sites, medical landmarks and diverse museums that tourists may visit during the annual meeting of the Indiana Medical History Museum. The meeting, which is open to the public, will occur from 2 p.m. to 4 p.m., Sunday, Oct. 20, at the museum.

During the presentation, Dr. Lipp will discuss the human element that helped to shape the development of these unique structures and sites. The colorful stories will enrich any tourists' experiences while visiting the various landmarks.

For example, Philadelphia's numerous historical structures include Pennsylvania Hospital — the first hospital in the colonies. Originally conceived by Dr. Thomas Bond in the 1750s, the idea for the hospital aroused little enthusiasm until Benjamin Franklin began supporting the project.

Franklin convinced the Pennsylvania Assembly to contribute 2,000 pounds towards the hospital's construction under the condition that Franklin match that figure by soliciting private donations. Franklin later recalled, "I do not remember any of my political manoeuvres the success of which gave me at the time more pleasure; or that in afterthinking of it, I more easily excused myself for having made the use of cunning."

In addition, the presentation will highlight the compassion and devotion that many people have exhibited to provide health care. The Kalaupapa National Historical Park in Hawaii includes the hospital, the doctor's house, the church and the other

(See "Landmarks" on Page 2)

MUSEUM EMPLOYS NEW DIRECTOR

The Indiana Medical History Museum this summer selected Oren S. Cooley as the organization's first full-time director.

Previously, Katherine Mandusic McDonell not only worked half-time as the museum's director but also served half-time at the Indiana Historical Society where she researched medical history. McDonell left her positions to become the assistant director for marketing and communications at the Indiana University Center on Philanthropy.

Cooley possesses diverse experience in the medical and museum fields. Most recently, he worked for one-and-a-half years in the marketing/public relations department at Westview Hospital and, prior to that position, for more than three years in the research department at St. Vincent Hospital and Health Care Center.

Currently, Cooley serves on the Board of Directors for the Association of Indiana Museums (AIM), for which he edits the organization's newsletter, the *AIM Bulletin*.

In addition, Cooley volunteers at the President Benjamin Harrison Home in Indianapolis. Among his activities, he conducts tours and assists the museum's staff with special events.



Medical Landmarks USA: A Travel Guide explores the various attractions tourists may visit. Author Martin R. Lipp, M.D., will speak at the museum's annual meeting Oct. 20.

JAMES HARVEY YOUNG TO SPEAK AT SOCIETY'S ANNUAL CONFERENCE

Dr. James Harvey Young will speak on the important role Hoosiers played in the development and passage of the first federal legislation regulating the production of food and drugs during the Indiana Historical Society's 73rd annual Indiana History Conference Nov. 1-2.

His presentation, entitled "The Toadstool Millionaires: Their Rise and Restraint," will begin during the conference's luncheon on Nov. 2. The event will occur at the University Place Conference Center in Indianapolis.

Dr. Young, Professor of History Emeritus at Emory University in Atlanta, has written several books that trace the history of health quackery in America. In *The Toadstool Millionaires* (1961), the author describes the origin, development and criticism of patent medicines in America from the importation of British brands during colonial days to the enactment of the Pure Food and Drugs Act in 1906.

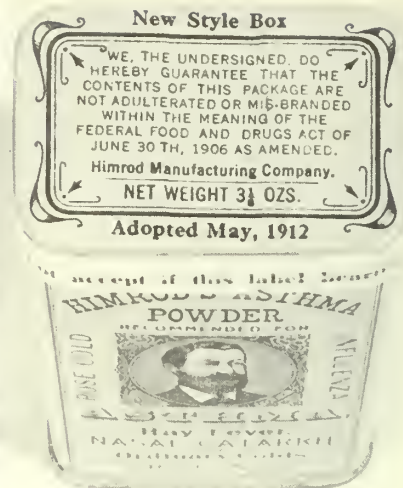
Dr. Harvey Washington Wiley campaigned extensively during the late 1800s and early 1900s against impure food products and misbranded foods and drugs. As chief chemist for the U.S. Department of Agriculture, the Indiana native played a crucial role in the development and passage of the first federal legislation regulating the production of food and drugs.

The Indiana Historical Society designed the conference to recognize and celebrate the 175th anniversary of Indiana's statehood. The sessions will include presentations on archaeological, black, family, local, military and women's history.

The conference, open to the public, will begin with a program of the Indiana Association of Historians at 4:30 p.m., Friday, Nov. 1. Kenneth T. Jackson, Professor of History and Social Sciences at Columbia University in New York City, will discuss "The Future of the Past: The Fight over History in American Schools."

The sessions that celebrate Indiana's statehood will begin at 9 a.m., Saturday, Nov. 2. Besides Young's presentation, they include discussions on Indiana artists in the 19th century, Mexican deportation in the 1930s, the state's urban history and unknown facts about Indiana's history.

In addition, Jerry Sanders, Superintendent, Lincoln Boyhood National Memorial in Lincoln City, Ind., will examine Abraham Lincoln's family and the reasons the Lincolns came to Indiana. Afterwards, Wayne Sanford, Director of Public Relations, Crown Hill Cemetery and Mausoleum in Indianapolis, will present a talk, entitled "The Many Faces of Abraham Lincoln."



The new style box for Himrod's Asthma Powder reflects the effect the Pure Food and Drugs Act of 1906 had on the manufacturers of medicine. Dr. James Harvey Young will address the important role Hoosiers played in the passage of that legislation during the Indiana Historical Society's 73rd annual Indiana History Conference Nov. 1-2.

[Interested people should register by Tuesday, Oct. 29, in order to attend the conference. For more information, contact the Indiana Historical Society, 315 West Ohio Street, Indianapolis, IN 46202 (317) 232-18821.

Snakeroot Extract derives its name from the white snakeroot plant, which significantly impacted medical history in Indiana. Many early Hoosiers experienced milk sickness, a mysterious disease the cause of which remained unknown until the 1920s. At that time, physicians traced the disease to the white snakeroot, or rather, to the consumption of milk from cows that had grazed on the plant. The white snakeroot contains the poison tremetol.

The Indiana Medical History Museum publishes **Snakeroot Extract** in association with the Indiana Historical Society. Thus, the members of the museum and the members of the Indiana Historical Society's Medical History Committee receive this newsletter. Individuals should direct inquiries about committee membership to: Indiana Historical Society, 315 West Ohio Street, Indianapolis, IN 46202-3299, (317) 232-1882.

Individuals should submit items for publication and direct any inquiries about museum membership to: Oren S. Cooley, Indiana Medical History Museum, 3000 West Washington Street, Indianapolis, IN 46222-1055, (317) 635-7329.

LANDMARKS

(Continued from Page 1)

buildings built by Father Joseph Damien after he arrived in 1873 to address the plight of people afflicted with leprosy.

Lepers were confined to the peninsula after King Kamehameha V signed the "Act to Prevent the Spread of Leprosy" in 1865. However, the isolated community, dominated by disease and hopelessness, slowly degenerated until Father Damien's arrival.

Gradually winning the trust of the people, Father Damien worked tirelessly to construct buildings, run fresh-water lines, plant crops, bandage the patients' sores and care for the spirit of his flock. When he died of leprosy in 1889, Father Damien had demonstrated to the world that once again love can provide powerful medicine.

Besides discussing the historical sites and people, Dr. Lipp will recount his experiences in gathering the information for his book. After the presentation, the audience

may meet Dr. Lipp and share their travel experiences during an informal reception.

People attending the annual meeting also may tour the Indiana Medical History Museum. The facility was the last site visited by Dr. Lipp during his year-long tour of the nation's various medical landmarks.

"This marvelous museum is quite simply without peer in the entire country," wrote Dr. Lipp in *Medical Landmarks USA: A Travel Guide*. "What sets it apart from the competition is not its collection . . . but rather the incredibly well-preserved building in which the collection is displayed."

Besides *Medical Landmarks USA: A Travel Guide* (1991), Dr. Lipp's published works include *The Human Side of Medical Care* (1977) and *Respectful Treatment — A Practical Handbook of Patient Care* (1986).

[Interested people may contact the Indiana Medical History Museum at (317) 635-7329 for more information about the annual meeting.]

LECTURES, SURGERIES OCCURRED IN AMPHITHEATERS

Physicians trained during the late 1800s and early 1900s experienced the golden era for the anatomical or surgical amphitheater — the principal facility then used to educate medical students.

Oval or circular in nature, the amphitheater consisted of rising tiers of seats arranged about an open space. This unique configuration enabled physicians not only to perform autopsies or surgeries but also to simultaneously demonstrate those procedures to numerous medical students.

Medical amphitheaters developed in the 1500s when physicians and laymen expressed a keen interest in witnessing anatomical dissections and learning about anatomical knowledge. Although temporary facilities existed, the first permanent anatomical amphitheater was constructed in 1594 for surgeon-anatomist Fabricius ab Aquapendente of Padua.

In the 1600s and 1700s, surgeons, especially in France, began to use large amphitheaters in order to demonstrate operative procedures on cadavers to medical students. As a result, teaching hospitals gradually adopted amphitheaters as the primary arena in which surgeons could not only lecture to students but also perform operations on patients.

Large surgical amphitheaters became more commonplace in metropolitan medical centers during the 1800s. This trend continued as the medical profession's and the public's fascination with surgery grew and as the introduction of anesthesia increased the number of elective surgeries.

The amphitheaters constructed during the late 1800s and early 1900s often accommodated between 100 and 400 people. From elevated tiers, professional colleagues and medical students watched as the surgeons demonstrated their proficiency in performing various procedures.

In an article published in 1919 that recounted this earlier period, Dr. Stephen Smith, a New York surgeon, described the intense fascination with surgery and the prominent role afforded the surgeon. "The Catlin [a double-edged, pointed knife], glittering for a moment above the head of the operator, was plunged through the limb and with one artistic sweep made the flaps or completed a circular amputation," wrote Dr. Smith about a surgical procedure performed in the 1870s at Bellevue Hospital in New York City. "The fall of the amputated part was greeted with tumultuous applause by the excited students. The operator acknowledged the compliment with a formal bow."

This increased interest that the medical profession maintained in surgery and the heightened confidence the public expressed in this field prompted hospital authorities to upgrade operating arenas. As a result, elegant new surgical amphitheaters constructed of iron, marble and glass replaced the wooden structures built previously.

As advances in microbiology dictated the adoption of aseptic practices, the risk element and excitement often associated with surgery decreased. As the fascination with



"The Gross Clinic" (1875) by Thomas Eakins depicts American surgeon Samuel Gross as he demonstrates surgical techniques for the attending medical students. Oval or circular in nature, many amphitheaters in the late 1800s could seat as many as 500 medical students.

this field declined, hospitals began to replace surgical amphitheaters with operating rooms which only accommodated the surgeons and assistants needed to perform the procedures.

As with the rise of the medical amphitheater, the decline of these structures began to occur in Europe before the trend occurred in America. As early as 1886, German surgeon Albert Christian Theodor Billroth lamented that few of the 50 to 60 students who attended lectures in his 450-seat amphitheater remained to witness the operations. By 1917, surgical amphitheaters had disappeared completely from hospitals in London.

In America, surgeons continued to perform operations in large amphitheaters until the 1920s. By the end of that decade, increased incidence of wound infection supported the general conviction that surgeons and hospitals should discontinue the use of these facilities.

Surgical amphitheaters did experience a fleeting revival when physicians began to perform open-heart surgeries in the 1950s. Unlike their predecessors, the amphitheaters built during this decade used overhead glass domes to screen the operative arenas from interested spectators. Today, these viewing domes remain empty except for occasional demonstrations of special surgical procedures.



Physicians observe a surgical procedure in the amphitheater at the Indianapolis City Hospital (now named Wishard Hospital) in the early 1920s. As advances in microbiology dictated the adoption of aseptic practices, hospitals replaced surgical amphitheaters with operating rooms that accommodated only the physicians needed for the surgery.

[Source: *The Rise of Surgery: From Empiric Craft to Scientific Discipline* (1978) by Owen H. Wangenstein, M.D., Ph.D., and Sarah D. Wangenstein, B.A.]

MUSEUM RECEIVES TWO GRANTS

The Indiana Medical History Museum received two grants this year which the museum will use to make improvements to its historic structure and to develop various educational programs.

The grants include a \$10,000 matching grant from the Historic Preservation Grant Program of the U.S. Department of the Interior. In Indiana, the Division of Historic Preservation and Archaeology of the Department of Natural Resources administers the program.

In addition, the museum received a \$7,197 general operating support grant from the Institute of Museum Services (IMS). The IMS provides museums with the only federal source for funds to cover general operating expenses.

The Indiana Medical History Museum will use the \$10,000 matching grant to install a new flat roof on the rear portion of the historic structure. This work also will include repairing the building's skylights and guttering as well as repointing any damaged masonry.

In addition, the matching grant will

enable the museum to install a handicapped-access ramp. The structure will allow admittance to seven of the eleven historical rooms and the museum's exhibits gallery.

The museum also will use the matching grant to install automatic change-over thermostats for the building's temperature control unit. The improvement will help the museum provide the constant interior temperature necessary to preserve the museum's collection of more than 15,000 artifacts.

The \$7,197 general operating support grant will help the museum develop programs for school children, self-guided tours of the museum and exhibits on the history of health care. The museum also will use the grant to purchase supplies and materials for the care and conservation of its collection.

The Indiana Medical History Museum was one of 132 museums nationwide to receive a general operating support grant. The IMS announced the award after reviewing 1,390 applications submitted from various types of museums.

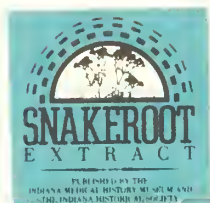


ANNUAL CAMPAIGN TO BEGIN IN NOVEMBER

The Indiana Medical History Museum will begin its annual operating support campaign this November.

The campaign helps raise funds to support various aspects of the museum's operations, such as the costs associated with utilities and maintenance. The individual and corporate contributions enable the museum to remain open to provide its diverse programs.

The Indiana Medical History Museum conducted its first operating support campaign in 1989, when the museum raised more than \$10,000. Last year, the museum increased its contributions to more than \$16,500.



Indiana Medical History Museum
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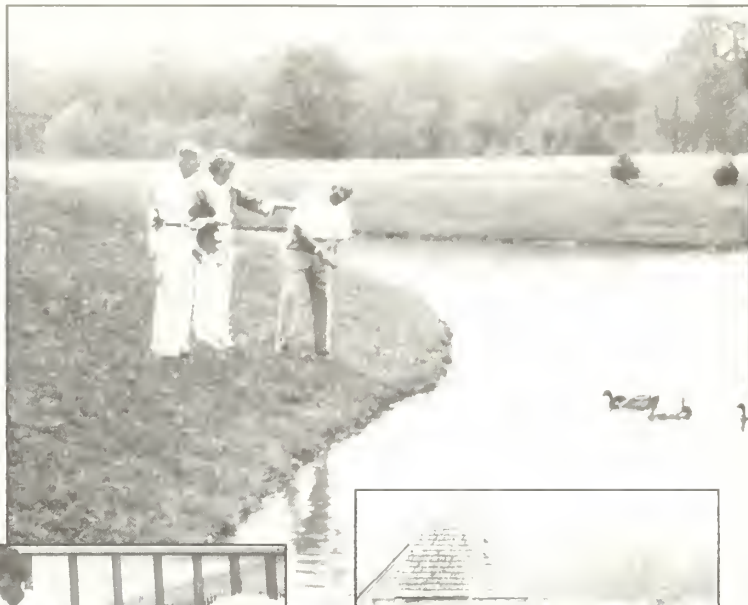
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Executive summary of white paper on INCAP

For health care providers and health care consumers, the development of a fair and efficient system for adjudicating medical malpractice claims is an issue that threatens the accessibility, affordability and quality of health care in the United States.

The American Medical Association has estimated that the threat of malpractice lawsuits adds \$5.6 billion in insurance premiums each year to the nation's health-care bill, and approximately \$15 billion in the form of defensive medicine procedures.

Throughout the nation, states are experiencing shortages of physicians and dangerous gaps in the availability of specific medical procedures, such as obstetrics, as a result of the high cost of medical liability insurance and the ever-increasing likelihood of litigation.

Access to physicians and medical care was one of the driving issues in the development of Indiana's groundbreaking 1975 malpractice legislation. Not only was Indiana the first state in the nation to adopt comprehensive malpractice reforms, but it has maintained them. Now Indiana's law has become a model for other states contemplating tort law changes.

Referred to as the Indiana Compensation Act for Patients (INCAP), this new law was the first comprehensive patient compensation statute in the nation. In subsequent legal tests, the Indiana Supreme Court has upheld the constitutionality of key aspects of this legislation. The law's goal was, and is, to protect the health of the citizens of Indiana by preventing a reduction of health care services.

Within the last 12 months, the

Message from the president

Michael O. Mellinger, M.D.
ISMA President

The issue of professional liability continues to be a concern of all physicians. The following executive summary of a white paper on the Indiana Compensation Act for Patients (INCAP) tells the success story of Indiana's malpractice legislation. The paper, commissioned by the Indiana State Medical Association, shows that INCAP gives physicians a stable environment in which to practice, assures patients of access to quality medical care and fairly compensates injured patients. The white paper, available on request from the ISMA Communications Department, will be discussed Saturday, Nov. 9, during a special session at the ISMA annual meeting. I encourage your attendance at this special session to learn more about INCAP. □

neighboring states of Michigan, Wisconsin and Illinois have reported physician shortages, but Indiana has continued to provide affordable, accessible care to patients due to INCAP.

* In Wisconsin, one in eight obstetricians and one-fourth of all family physicians no longer deliver babies due to the high cost of medical liability insurance and payments into their Patient Compensation Fund (PCF). In 1990, 42 counties lacked adequate access to obstetricians and other physicians, compared to 25 counties in 1979. During the same time period obstetric liability premiums rose from \$6,297 to \$58,288 a year.

* Twelve rural Southern Illinois counties had no obstetric care at all in 1989. Doctors and hospitals often restrict or eliminate obstetric services because of high malpractice insurance costs. When doctors are forced to quit obstetrics or move to other states, pregnant women often are forced to drive 30 to 50 miles to have their babies delivered.

* Fifty-seven percent of Michigan's medical school graduates are leaving the state because of the high cost of premiums. Only Florida and New York pay higher professional premiums than Michigan. Patients in Michigan are at greater risk because their state is losing doctors daily to neighboring states.

Researchers have theorized that reports of technological advances and headlines trumpeting medical breakthroughs have contributed to a heightened public perception that all maladies can, and should, be cured. As such, the liability problem is, in part, related to advancements in the field of medicine that have produced wholly unrealistic expectations.

According to a Gallup Poll cited this year in *Best's Review*, as many as 93 percent of national respondents believe today's higher medical malpractice insurance rates are directly linked to patients' increased tendency to sue their doctors. The same poll

found that 88 percent are convinced that doctors are being charged higher malpractice insurance rates because settlements in liability lawsuits are much larger than they used to be. However, a solid 72 percent of those polled do not believe that physicians today are less competent than they used to be.

No evidence exists that can directly correlate the higher number of professional liability claims and the explosive growth in the size of awards to a decline in the quality of health care. Nevertheless, in most states, more physicians are being sued for more money than ever before. The result is fewer physicians and a dangerous lack of medical care for far too many Americans.

Before the Indiana General Assembly enacted INCAP, the state's health care providers – and ultimately, the state's health care consumers – were faced with a crisis of similarly monumental proportions. Insurance companies covering Indiana health care providers, in reaction to enormous jury awards for medical malpractice plaintiffs, increased medical malpractice premiums by an average of 410 percent between 1970 and 1975. Physicians were retiring early; others abandoned high-risk fields such as obstetrics, neurology and anesthesiology.

INCAP approached the twin dilemma of soaring liability costs and the accompanying threat of impaired access to medical care from a variety of directions:

- * A state-run insurance fund to pay large claims, called the Patient's Compensation Fund (PCF), was created by levying an annual surcharge on physicians equal to 150 percent of their annual malpractice premium, as of Oct. 1, 1991.

- * The law set up a medical review panel to determine, once a complaint has been filed, whether or not it believes negligence occurred. The panel is composed of three health care providers and one attorney, who has no voting power. The panel opinion rendered is not legally binding, but members can be called upon to testify if the case proceeds to court.

- * According to the statute, health care providers are required to have at least \$100,000 malpractice liability insurance per occurrence and \$300,000 in the annual aggregate.

- * As a means of curbing the runaway awards plaguing other states, the law set an upper limit on recoverable awards, which was increased by 50 percent last year. The amount a plaintiff can receive is \$750,000, raised from \$500,000, for incidences of alleged malpractice after January 1, 1990. This amount does not account for any reimbursement the plaintiff may receive from other sources, such as health insurance, etc.

- * The law attempted to control attorneys' fees to ensure that awards for injured patients go where they are intended – to the patients. Attorneys' fees are unlimited on the first \$100,000 recovered by the plaintiff, and they are allowed up to 15 percent of any recovery from the PCF. There is no limit on the amount of expenses an attorney may charge. National studies have demonstrated that approximately 60 percent of the money spent on malpractice goes to attorneys and court administration.

Medical malpractice is not one problem, but a series of interrelated problems that involve the regulation and social control of medical practice, quality of care,

insurance markets, consistent assessment of liability in the legal system and the existing paradigm of societal attitudes toward the practice of medicine. As such, the solution to this series of problems must involve action on multiple fronts. INCAP, with its multi-dimensional approach, has proven to be both patient-friendly and physician-friendly.

According to a three-year study conducted by the Indiana University Center for Law and Health, patients with malpractice claims of more than \$100,000 received higher awards in Indiana than in nearby states without statutory liability limits. The study found that the average payment for large claims in Indiana, between 1975 and 1988, was \$404,832. By way of comparison, the average in Michigan was \$290,022, and the average in Ohio was \$303,220 in that span.

During the same 13-year period, Indiana's malpractice claims were closed without payment only 32 percent of the time, compared to 57 percent in all other states.

As a result of the conducive atmosphere created by INCAP, the physician-population in Indiana is now 107 percent of what it was before the 1975 crisis in Indiana. Today that crisis is being reenacted in other states throughout the nation.

INCAP, created as a balance of competing public policy agendas, has withstood multiple constitutional tests and, most importantly, has met the test of public need. Physicians in the state have a stable environment in which to practice, Hoosiers have access to quality medical care and injured patients receive fair compensation. In short, INCAP works. □

■ the wounded healer

Dual diagnosis

Kete Cockrell, M.D.
Plainfield, Ind.

Approximately 30% of all impaired physicians suffer from chemical dependency and exhibit symptoms that substantiate a separate, identifiable psychiatric disorder. These physicians are referred to as dually diagnosed and should not be confused with:

- cross-addicted physicians who are addicted to more than one chemical, usually alcohol plus another drug(s);
- dually addicted physicians who suffer from more than one addiction, such as drugs, sex and/or food; and
- addicted physicians with another medical diagnosis, either a medical complication of the addiction (e.g., alcoholism and cirrhosis) or unrelated to the addiction (e.g., alcoholism and rheumatoid arthritis).

An understanding of these categories and their associated diagnostic criteria is necessary to accurately diagnose physicians with complex addictive, psychiatric and medical symptoms. Appropriate evaluation of these symptoms requires the following: 1) meticulous medical and psycho-social history taking; 2) consultations with family members, business associates and employers; and 3) a comprehensive physical examination; and 4) indicated laboratory, radiological, psychological and other tests.

In addition to understanding the diagnostic categories, the clinician must be open minded to the dual diagnosis concept. Primarily psychiatric-oriented clinicians usually adhere to the erroneous and antiquated concept that

chemical dependency is a symptom of an underlying psychiatric disorder, and if the psychiatric disorder is treated, the chemical dependency will disappear. Conversely, primarily addiction-oriented clinicians usually relate all symptoms to chemical dependency, adhering to the misguided concept that if the chemical dependency is properly treated, the other symptoms will abate.

These diametrically-opposed clinical concepts represent undesirable side effects. Before the recognition of chemical dependency as a disease, chemically dependent patients were diagnosed with psychiatric disorders and treated primarily by psychiatrists. Patients with psychiatric disorders were treated with psychotherapy, mood- and mind-altering drugs and addictive medications; it is not surprising that recovery rates were dismal.

The recognition of chemical dependency as a disease and the lack of successful treatment results suggested the need to research alternative treatment approaches. Eventually, a treatment program combining medical, psychiatric, psychological and Twelve Step Program (i.e., Alcoholics Anonymous) components became the most effective treatment approach to chemically dependent patients. Physicians, including many psychiatrists, adopted this Twelve Step-oriented treatment program in outpatient and inpatient settings.

However, clinicians, patients and patients' family members enjoying recovery as a result of the new treatment program and suffering what they perceived as tragic consequences of treatment failures by prior methods were sensitized and highly critical of any therapeutic approach that

included conventional psychiatric approaches. Enhanced by an ever-increasing number of recovering patients, these views were widely circulated in medical and lay communities. These views were disseminated and interpreted by non-professionals, and the resulting public and medical opinions were biased and, frequently based on false or distorted information.

Concurrently, misinterpretation of the principles of Alcoholics Anonymous by clinicians and patients led to the false assumption that recovery could not be maintained if any mood- or mind-altering or addictive medications were taken. Alcoholics Anonymous encourages consultation with physicians, including psychiatrists, ministers and other professionals. AA recognizes these professional services, including the appropriate prescription of mood- or mind-altering or addictive medications, as mandatory components of a successful recovery program. Many patients in early recovery do not understand this principle. Some long-time AA members who think they were misdiagnosed and/or mistreated by physicians continue to criticize the medical profession in general and the prescription of medications specifically. However, the number of disgruntled AA patients is decreasing, and most current AA patients disregard the opinions of these disgruntled members.

The psychiatric community responded to these criticisms with a rejection of the disease concept and its associated Twelve Step-oriented treatment program. Addictionist clinicians were seen as competitors. Many patients previously treated almost solely by psychiatrists were now being

■ the wounded healer

effectively treated by other specialists, supposedly threatening the exclusivity and economics of psychiatric practice. Practicing in this atmosphere, psychiatric and addictionist clinicians tolerated each other and fiercely defended their respective positions. Consultation and cooperation were minimal.

This competitive therapeutic environment resulted in a group of patients with psychiatric and some chemical dependency problems being treated in the psychiatric model and achieving significant recovery. Patients with chemical dependency problems and some psychiatric problems were treated in the addictions model and achieved significant recovery. However, by the early to mid 1980s, psychiatric and addiction clinicians were identifying an alarming number of patients with a mixture of symptoms that did not respond to either model of treatment.

Further study of these treatment-resistant patients revealed diagnosable psychiatric disorders and chemical dependency in the same patient. Successful treatment depends on identifying the primary and secondary diagnosis. Many patients with primary psychiatric disorders, such as manic depressives, borderlines and antisocials, have an increased incidence of chemical dependency. Frequently, successful treatment of a psychiatric disorder improves chemical dependency. In addition, most patients with a primary diagnosis of chemical dependency exhibit some depression, antisocial, schizoid or compulsive symptoms. Successful treatment of chemical dependency results in the resolution of psychiatric symptoms.

However, patients with co-

existing diseases will not recover unless both diseases are treated simultaneously. Inpatient therapy, at least initially, is mandatory for these patients. Psychiatric consultation and, if indicated, daily therapy are essential. A locked psychiatric unit, seclusion rooms and support personnel experienced in using restraints must be available. Mood- or mind-altering medications may be necessary. The treatment team, consisting of a psychiatrist, a physician addictionist, group/individual therapists, and a psychologist, should include people educated and experienced in the psychiatric treatment model, as well as people educated and experienced in the addictions model. Treatment principles depend on the evaluation of the patient's symptoms and needs that day. Core components of both programs should be maintained at all times.

The treatment team should be committed to quality patient care based on accurate diagnoses and individualized treatment plans. The art of medical and psychiatric practice demands that professional clinicians be motivated to treat only in response to the patient's symptoms and needs. A clinician who is motivated to treat out of preconceived program bias (psychiatric or addiction) ignores the patient's needs, denies the patient adequate treatment, prejudices other team members and does not qualify as a treatment professional.

Most treatment centers function with a treatment team format; however, some are primarily psychiatric models while others are primarily addiction models. Many treatment centers claim a dual diagnosis program. Inspection of most of these programs

will reveal the following: the psychiatric staff is limited to consulting psychiatric services; a locked psychiatric unit is not available; seclusion rooms do not exist; no special therapy group exists for dually diagnosed patients; and the treatment team does not have staff with psychiatric and addictions backgrounds. Very few centers exist in the United States with proven effective treatment programs for dually diagnosed physicians.

In summary, dually diagnosed physicians account for approximately 30% of all impaired physicians. They present as complicated diagnostic problems. Historically, clinicians have disagreed about therapeutic approaches, resulting in professional rivalry and resentment. This has resulted in opinionated therapists who make treatment decisions based on pre-programmed bias rather than the patient's symptoms and needs. Successful treatment of dually diagnosed physicians requires a multidisciplinary team with a treating psychiatrist, an addictions physician, individual/group therapists and psychologists with psychiatric and addiction treatment expertise and experience. Treatment decisions are made only after professionally evaluating the patients' symptoms and needs daily. Treatment takes place in an inpatient setting with access to a locked psychiatric unit, seclusion room and support staff with experience in using restraints. Thorough evaluation of a treatment center must be completed before referring a physician for treatment since few qualified centers exist in the United States. □

The author is medical consultant to the ISMA Physician Assistance Program.

■ auxiliary report

Donna Dersch
ISMA-A, AMA-ERF Chairman

The young physicians ... where are they going, where have they been? What kind of emotional roller coasters are they riding? What can we do to help?

I'd like to share a few of my thoughts and hopes concerning these questions. As a mother who has had daily interaction with several medical students for several years, I have observed many of their feelings and frustrations.

These young, intelligent, ambitious men and women have chosen to dedicate their lives to serving humanity. They start medical school in all sizes, shapes and ethnic groups and from all socioeconomic backgrounds, but they have a common goal - to become a physician. I'm sure there is a wide range of factors driving them toward this goal, but somewhere in the midst of the fears and frustrations is the basic desire to practice the art and science of healing. All of the motivating factors are circumstances over which we have little control. Probably one of the most concerning factors in the lives of these young promising physicians is the financial debt most of them acquire. As physicians and spouses, we can help in this seemingly endless road of financial crises.

In 1990, \$2,420,968.28 was donated to the AMA-ERF fund from physicians and their spouses throughout the country. These funds were allocated to various medical schools across the country. The money was designated by the deans of each school to medical student loans, research grants, scholarships, support programs for women and minorities, equipment, subsidizing student

activities, guest lecturers and attending conferences and meetings. An average of \$500,000 has been given yearly to financial aid programs since 1983 when the assistance fund was established. However, Indiana is not among the top givers in the country.

As this year's state chairman of the AMA-ERF fund drive, I urge you to help me reach this year's goal of \$125,000. We will initiate several new state projects in which you can play a major role without too much effort. I urge you to cooperate and make this a record-breaking year for the AMA-ERF in Indiana. We appreciate your generous contributions throughout the years to the sharing card program, Christmas card sales and other programs. However, the level of giving to these programs has not increased proportionately to the increased cost of medical education, or even to the increased cost of living.

I urge each physician and auxiliary to strive to reach a goal of \$75 per capita contribution statewide to help reach our \$125,000 goal.

The auxiliary, along with the cooperation of each physician and the medical centers throughout

the state, will sponsor additional fundraisers this year. We hope each of you will cooperate to make this a record-breaking year in Indiana. Remember your own years of struggling as a young physician-in-training and the financial and emotional trials of starting a practice with large debts and the promise of even greater debt upon entering the real world of medicine.

Your past and future donations and cooperation are greatly appreciated.

Breast health seminar

The ISMA-Auxiliary will sponsor a seminar on breast health, self-examination and mammography titled "Ask the Experts" during the ISMA annual convention Nov. 9. The seminar will include a panel discussion with physicians, followed by questions and answers. Linda Smart from the National Cancer Institute will speak.

The seminar will be held from 9:30 a.m. to 11:30 a.m. at the Hyatt Hotel. The seminar is open to all auxiliaries and physicians' spouses. The auxiliary also will sponsor a hospitality area Friday at the Westin Hotel. □

ISMA Auxiliary calendar

Oct. 17 - AMA-ERF seminar, "Light My Fire." Holiday Inn Airport, Indianapolis, 9:30 a.m. to 2:30 p.m. Motivational team concept with speaker Barbara Lach of Columbus, Ohio. Fund-raising ideas. AMA-ERF national chairman Sancy McCool will discuss ideas from the AMA-A perspective.

Nov. 4 - Nominating committee meeting, ISMA office, 10 a.m.

Nov. 8-9 - Auxiliary hospitality area near registration desk, ISMA Convention at Westin Hotel in Indianapolis. Program on "Breast Cancer - Ask the Experts" from 9:30 a.m. to 11:30 a.m. Nov. 9 at Hyatt Regency Hotel in Indianapolis.

Nov. 20 - Long-range planning committee meeting, ISMA office, 10 a.m.

Dec. 12 - Bylaws and guidelines meeting, ISMA office, 10 a.m. □



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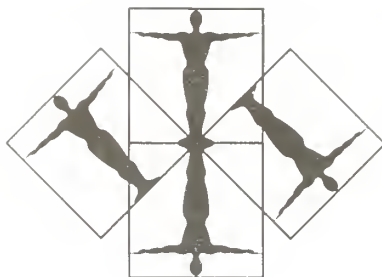
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Joseph W. King, M.D.

Dr. King, 79, a retired Anderson otolaryngologist and family practitioner, died Aug. 22.

He was a 1935 graduate of the Creighton University School of Medicine and a Navy veteran of World War II.

Dr. King joined his father and brothers in a family practice in 1935. He was the physician for the State Reformatory near Pendleton from 1987 to 1989 and worked at the State Prison in Michigan City from 1989 to 1991. He volunteered for the children's clinic of St. John's Medical Center in Anderson since 1973. Since retiring from his medical practice in 1987, he worked for Hoover Hearing Aid Co.

James R. McLaughlin, M.D.

Dr. McLaughlin, 90, Flora, died July 30 at his home.

He was a 1930 graduate of the Indiana University School of Medicine and an Army veteran of World War II.

Dr. McLaughlin had been a family practitioner in Galveston, Burlington, Logansport and Flora.

He was medical director for the Methodist Memorial Home in Warren from 1966 until he retired in 1975.

Max E. Pfuetze, M.D.

Dr. Pfuetze, 78, a retired Logansport general practitioner and surgeon, died July 28 in Memorial Hospital in Logansport.

He was a 1940 graduate of the University of Kansas School of Medicine and an Army veteran of the Korean War. He started the first MASH unit in Korea.

Dr. Pfuetze was a fellow at the Mayo Clinic and later served as ship surgeon for Cunard Cruise Ships. He was affiliated with Logansport State Hospital before starting his private practice in Logansport. He retired in 1984.

Isidore Rochlin, M.D.

Dr. Rochlin, 71, an Indianapolis internist, died Aug. 5.

He was a 1947 graduate of the medical school of McGill University in Canada.

Dr. Rochlin was in private practice with the Professional Associates Group from 1959 to

1972 and later worked with Harcourt Clinic. He had served as director of clinical chemistry for Presbyterian-St. Luke's Hospital in Chicago, instructor and clinical fellow for the Medical College of Alabama and instructor at the Indiana University Medical Center. He was an Army chief of medical service in Bordeaux, France, from 1955 to 1957. He was an honorary member of the New York Academy of Sciences and the Osler Society of McGill University.

Evertson H. Zell, M.D.

Dr. Zell, 73, Vernon, died Aug. 31 in Jennings Community Hospital in North Vernon. He moved to the North Vernon area after retiring in 1978.

Dr. Zell, a graduate of the University of Louisville Medical School, served in the Air Force from 1955 to 1957.

Dr. Zell was a partner and surgeon at the Indianapolis Industrial Clinic more than 30 years. He was a member of the Aircraft Owners and Pilots Association. □

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■ news briefs

Free brochures available from Arthritis Foundation

The Arthritis Foundation has available two free brochures containing tips designed to help people with arthritis deal with their condition.

Coping with Pain is a 25-page brochure providing information on pain control methods that include drugs, heat and cold, self-massage, exercise, and biofeedback. *Travel Tips for People with Arthritis* is a 31-page brochure that includes information on planning a trip, medical considerations and ways to conserve energy.

To order the brochures, call 1-800-783-2342 between 10 a.m. and 2 p.m. Tuesday through Thursday.

Depression focus of three AMA teleconferences

"Depression in Primary Care" will be featured during three teleconferences sponsored by the American Medical Association and the National Institute of Mental Health's Depression, Awareness, Recognition and Treatment Program.

The teleconferences will be aired at participating hospitals throughout the United States at no cost to viewers.

The first program, Oct. 24, will address epidemiology, etiology and diagnosis. Pharmacological and psychotherapeutic treatments of depression and guidelines for referring patients to mental health specialists will be discussed Nov. 21. The Dec. 11 program will focus on special populations, including elderly patients

and adolescents, and address differentiation between depression and normal mood variations and keys for making that distinction.

Viewers will be able to phone in questions during the video presentation.

For information on viewing sites and registration, call 1-800-262-3211.

NCI program designed to improve cancer detection

The National Cancer Institute (NCI) has announced a major collaborative effort, called "Prescribe for Health," designed to improve early cancer detection by primary care physicians.

During the next four years, NCI will award grants to physicians and research institutions to evaluate methods for implementing the NCI's working guidelines for early cancer detection. This is the first program to fund medical intermediary organizations to improve physician skills in detecting early cancers. More than \$7.5 million will be spent for the program.

A total of 348 medical practices, including approximately 1,000 physicians and more than 60,000 patients, will be studied.

Physicians assist in AIDS drug clinical trials

Abbott Laboratories has contracted with the Physicians Association for AIDS Care (PAAC) to provide assistance in coordinating the clarithromycin expanded access program for patients with HIV-associated *Mycobacterium avium* complex (MAC).

Under the agreement, PAAC's scientific committee will assist in protocol review and oversight of the investigational drug. PAAC also will assist in providing the most current information on the clarithromycin expanded access protocols to physicians, other caregivers and people with HIV disease so that physicians can enroll eligible patients for the drug at no cost.

For more information on clarithromycin, call 1-800-688-9118.

Practices more cautious in salaries to new doctors

The Health Care Group's Physician Starting Salary Survey 1991-92 suggests that practices are being more cautious in their offers to first-year associates.

Three statistics from the survey support this conclusion:

- The portion of practices reporting "salary only" compensation dropped 5%, while those mixing salary and incentive compensation increased 7%.
- The number of practices including a restrictive covenant or liquidated damages provision in the contract jumped 7%, suggesting increased interest in protecting patient bases and service areas from new competition.
- The number of practices picking up the entire cost of the new doctor's claims-made "tail" coverage decreased 8%, suggesting an unwillingness to assume costs not directly related to a practice's continuing success. □

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Dr. Ronald G. Blankenbaker, vice president of medical affairs at St. Vincent Hospital in Indianapolis, was recognized by U.S. Sen. Dan Coats for his seven years of service as a member of the National Committee on Vital and Health Statistics. He also received a Director's Award from the National Center for Health Statistics for his service on the committee, including five years as chairman, and was honored by the U.S. Department of Health and Human Services.

Dr. Stephen W. Perkins, an Indianapolis facial plastic surgeon, served on two panels at the fall conference of the American Academy of Facial Plastic and Reconstructive Surgery in Kansas City, Mo.; the panel topics were "Lower Facial Rejuvenation - Advanced Techniques" and "Making Your Facial Plastic Surgery Practice More Efficient and Successful."

Dr. Eric Sklarew, an Indianapolis plastic surgeon, joined Dr. Perkins to present a seminar on "Sports Related Facial Trauma in Children." **Dr. F. Brian Gibson**, an Indianapolis plastic surgeon, spoke during a seminar on "Developing a Facial Aesthetic Surgery Clinic" at the conference.

Dr. William R. Nunery of Indianapolis participated in the oculoplastic and orbital trauma symposium of the National Eye Trauma Systems symposium in Chicago; he also presented a lecture to the National Medical Association on oculoplastic emergencies.

Dr. Hans R. Wilbrandt of Indianapolis was the program coordinator for a recent Cataract Surgery Update and Phacoemulsification Workshop at Methodist Hospital in Indianapolis; he also presented a paper on "Flow Parameters and Instrument Settings"

Physician Recognition Award recipients

The following ISMA physicians are recent recipients of the AMA's Physician Recognition Award. This award is official documentation of Continuing Medical Education hours earned and is acceptable proof in most states requiring CME in re-registration that the mandatory hours of CME have been accomplished.

Cain, Jeffrey L., Elkhart
Chernish, Stanley M., Indianapolis
Cline, Donald L., Indianapolis
Cooper, B. Trent, Fort Wayne
Cortese, Thomas A., Indianapolis
Cronin, H. Joseph, Indianapolis
Dubois, Don R., Greenwood
Fiacable, Joseph P., Fort Wayne
Higgins, Jack W., Kokomo
Horner, Terry G., Indianapolis
Kovacich, Michael, Merrillville
Labitan, Cesar M., Valparaiso

Marks, John S., Indianapolis
Miller, L. Hoyt, Indianapolis
Rau, David C., Columbus
Riley, Paul D., Indianapolis
Roth, Bertram S., Indianapolis
Scheeres, Jacob W., Lafayette
Smith, John P., Bluffton
Thompson, John M., South Bend
Tritch, Dan L., Fort Wayne
Webb, Bob L., Odon
Weiss, Brian H., Merrillville
Welch, Anna L., Lafayette

and video presentations on "Capsulorhexis - Why?" and "Simplified Capsulorhexis with the Nevyas Katena Capsulorhexis Cystotome" at the workshop.

Several physicians from The Indiana Hand Center in Indianapolis have participated in specialty society activities. **Dr. James B. Steichen** was the 1991 invited foreign guest lecturer at the University of Istanbul for the Department of Orthopaedics and Traumatology and the Turkish Orthopaedic and Traumatology Association's 10th Annual AKIF SAKIR SAKAR days and the sixth Post-Graduate Course on Hand and Microsurgery. **Dr. William B. Kleinman** lectured at the American Society for Surgery of the Hand course titled "Congenital Anomalies of the Upper Extremity: A Current and International Perspective" in Maui, Hawaii. **Dr. Hill Hastings II** attended a trustee meeting of the AO-ASIF in Zell Am See, Austria, and was a faculty member of the

American Academy of Orthopaedic Surgeons comprehensive review course in Chicago.

Dr. Richard S. Idler spoke on "Occult Wrist Pain" and "Endoscopic Carpal Tunnel Release" at a meeting of the Habilis Travel Study Club of the American Society for Surgery of the Hand in Gleneden Beach, Ore. **Dr. Thomas J. Fischer** was elected historian for the Hand Forum during the group's meeting at The Greenbrier resort in West Virginia.

Dr. Richard D. Feldman, director of the family practice program at St. Francis Hospital Center in Beech Grove, spoke on chronic bronchitis during the scientific assembly of the American Academy of Family Physicians in Washington, D.C.

Dr. John C. Johnson, director of the center for trauma and emergency care at Porter Memorial Hospital in Valparaiso, received a Sagamore of the Wabash Award from Gov. Evan Bayh; he was honored for his service to Indiana

in emergency medical services.

Dr. Kurt H. Stiver was named medical director of prenatal services at Memorial Hospital of South Bend.

Dr. Stephen E. Muething of Batesville was elected to fellowship in the American Academy of Pediatrics.

Dr. Allen S. Martin was honored by his staff for 25 years as a Shipshewana family physician; he received a plaque during a surprise dinner.

Dr. John D. Pattison has retired as a Marion family practitioner.

Dr. Wallace M. Adye, director of the Deaconess Hospital Family Practice Residency Program in Evansville, was elected president of the Indiana Academy of Family Physicians.

Dr. Larry C. Hughes of Mooresville was appointed medical director at Decatur Nursing and Rehabilitation Center. □

New ISMA members

Troy R. Bergin, M.D., Granger, family practice.

Richard W. Borrowdale, M.D., Indianapolis, otolaryngology.

Lawrence M. Brubaker, M.D., Jasper, family practice.

Robert L. Christensen, M.D., Cicero, family practice.

Brian G. Cole, M.D., Indianapolis, family practice.

Robert H. Dorwart, M.D., Indianapolis, radiology.

Brian L. Eddy, M.D., Anderson, hematology.

David J. Fang, M.D., Indianapolis, otolaryngology.

Fred W. Frick, M.D., Indianapolis, internal medicine.

Hollis M. Fritts Jr., M.D., Indianapolis, diagnostic radiology.

Lawrence E. Gering, M.D., Indianapolis, cardiovascular diseases.

Harvey J. Green, M.D., Granger, child psychiatry.

Mary L. Harty, M.D., Scottsburg, diagnostic radiology.

Jesse D. Hoff, M.D., Evansville, family practice.

Charles T. Luecker, M.D., Valparaiso, orthopaedic surgery.

Donald J. Maddack, D.O., Mishawaka, family practice.

Steven R. Pollei, M.D., Indianapolis, radiology.

Thomas H. Roberts, M.D., Michigan City, anatomic and clinical pathology.

Kurt P. Schellhas, M.D., Indianapolis, radiology.

James J. Szwed, M.D., Indianapolis, internal medicine.

Neera D. Ummat, M.D., Scottsburg, diagnostic radiology.

Charles R. Wesley, M.D., Indianapolis, ophthalmology.

Mark A. Westfall, M.D., Marion, family practice.

Vicky L. Young, M.D., Elkhart, general preventive medicine.

Residents

James S. Alexander, M.D., Fort Wayne, obstetrics and gynecology.

Joel C. Boaz, M.D., Indianapolis, neurological surgery.

Juan C. Cabrera, M.D., Indianapolis, psychiatry.

Kurtis J. De Jong, M.D., South Bend, family practice.

James C. Dozier, M.D., Fort Wayne, neurological surgery.

Laura A. Hester, M.D., South Bend, family practice.

Daniel A. Lee, D.O., Indianapolis, ophthalmology.

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- 8 — Pres.
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- 10 — Pres. Filemon P. Lopez, Dyer
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Precautions: Verapamil should be given cautiously to patients with impaired hepatic function (in severe dysfunction use about 30% of the normal dose) or impaired renal function, and patients should be monitored for abnormal prolongation of the PR interval or other signs of overdose. Verapamil may decrease neuromuscular transmission in patients with Duchenne's muscular dystrophy and may prolong recovery from the neuromuscular blocking agent vecuronium. It may be necessary to decrease verapamil dosage in patients with attenuated neuromuscular transmission. Combined therapy with beta-adrenergic blockers and verapamil may result in additive negative effects on heart rate, atrioventricular conduction and/or cardiac contractility, there have been reports of excessive bradycardia and AV block, including complete heart block. The risks of such combined therapy may outweigh the benefits. The combination should be used only with caution and close monitoring. Decreased metoprolol and propranolol clearance may occur when either drug is administered concomitantly with verapamil. A variable effect has been seen with combined use of atenolol. Chronic verapamil treatment can increase serum digoxin levels by 50% to 75% during the first week of therapy, which can result in digitalis toxicity. In patients with hepatic cirrhosis, verapamil may reduce total body clearance and extrarenal clearance of digoxin. The digoxin dose should be reduced when verapamil is given, and the patient carefully monitored. Verapamil will usually have an additive effect in patients receiving blood-pressure-lowering agents. Disopyramide should not be given within 48 hours before or 24 hours after verapamil administration. Concomitant use of flecainide and verapamil may have additive effects on myocardial contractility, AV conduction, and repolarization. Combined verapamil and quinidine therapy in patients with hypertrophic cardiomyopathy should be avoided, since significant hypotension may result. Concomitant use of lithium and verapamil may result in a lowering of serum lithium levels or increased sensitivity to lithium. Patients receiving both drugs must be monitored carefully. Verapamil may increase carbamazepine concentrations during combined use. Rifampin may reduce verapamil bioavailability. Phenobarbital may increase verapamil clearance. Verapamil may increase serum levels of cyclosporin. Verapamil may inhibit the clearance and increase the plasma levels of theophylline. Concomitant use of inhalation anesthetics and calcium antagonists needs careful titration to avoid excessive cardiovascular depression. Verapamil may potentiate the activity of neuromuscular blocking agents (curare-like and depolarizing); dosage reduction may be required. Adequate animal carcinogenicity studies have not been performed. One study in rats did not suggest a tumorigenic potential, and verapamil was not mutagenic in the Ames test. Pregnancy Category C. There are no adequate and well-controlled studies in pregnant women. This drug should be used during pregnancy, labor, and delivery only if clearly needed. Verapamil is excreted in breast milk, therefore, nursing should be discontinued during verapamil use.

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AMA adopts resolutions concerning HBV infection

The American Medical Association House of Delegates adopted the following resolutions:

1. That a health care worker who has developed a protective level of antibody to HBV as a consequence of a natural infection and who is not HBsAg positive (i.e., HBV carrier) not be restricted from performing invasive procedures.
2. That a health care worker who is at risk for HBV infection, has no immunity resulting from a natural infection, and who has not initiated immunization with HBV vaccine either be immunized or abstain from practicing invasive procedures.

The AMA previously adopted a policy requiring all students entering medical school to be immunized with HBV vaccine and supported the proposed regulation of the Occupational Health and Safety Administration requiring the vaccination of all health care workers at risk of HBV infection.

SIMBA seminar to focus on health care reform

"Health Care Reform: Evolution or Revolution?" is the topic of a seminar to be held April 6 to 9, 1992, at the Sundial Beach and Tennis Resort in Sanibel Island, Fla. The Seminars for Indiana Medico/Legal Bar Association, the Indiana Hospital Association and the Indiana State Medical Association are co-sponsoring the event, open to Indiana health care decision makers. Topics will include competition versus collaboration, quality initiatives, political climate for change, the right to die, joint ventures/safe harbors, the future for hospital unions and Hoosier health policy development. The registration fee is \$350. For details, call Cindy Christ, (317) 871-6222.

ISMA representatives discuss INCAP with media

During recent visits to newspapers and radio stations, physicians representing ISMA discussed how the state's malpractice legislation is beneficial to both physicians and patients. The legislation, referred to as the Indiana Compensation Act for Patients (INCAP), was the topic during interviews at two radio stations in Richmond and during editorial board visits to the *Palladium-Item* in Richmond, the *Vidette-Messenger* in Valparaiso and the *Michigan City News Dispatch*. Michael Mellinger, M.D., and Jerome Melchior, M.D., traveled to Richmond, and Dr. Mellinger spoke in Valparaiso and Michigan City.

Mark your calendars for annual ISMA legislative reception

"An Evening with the Stars" awaits those attending the annual ISMA/IMPAC legislative reception. The event is set for 6 to 8:30 p.m. Wednesday, Jan. 15, at the Hyatt Regency Hotel in downtown Indianapolis. Physicians will have an opportunity to discuss issues of concern to medicine with their legislators. All ISMA members and members of the Indiana General Assembly are invited. For details, call Susan Grant at the ISMA, (317) 261-2060 or 1-800-969-7545. ▽

■ from the museum

The Indiana Medical History Museum would like to thank the following people and companies for contributing to its 1990-91 operating support campaign by sending a donation to the museum or enclosing a contribution with their Indiana State Medical Association dues statement (in addition to the \$10 "Med Mus" fee). This support is used to pay salaries, sponsor exhibits and educational programs and maintain the historic Old Pathology Building. Contributors to this campaign include:

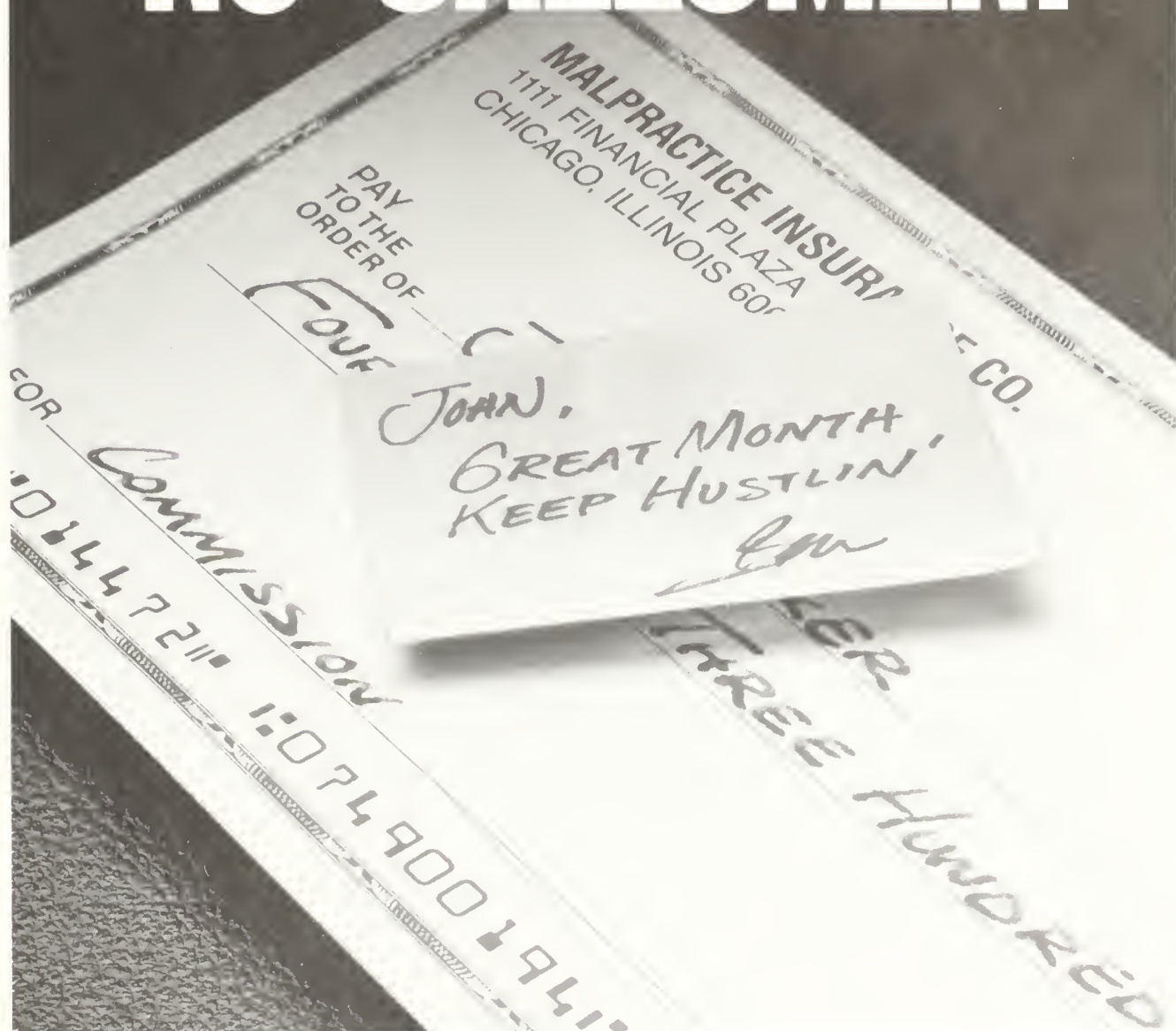
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■ what's new

RANAC Computer Corp. has announced the introduction of **CompreCLAIM™**, an insurance claims processing system with electronic claims transmission designed for the small health care provider. Filing claims electronically with **CompreCLAIM™** will allow offices to receive payment within 14 to 20 days. The system can be expanded as practice growth dictates.

Wampole Laboratories has introduced the **Zeus Scientific, Inc.** Measles Immunofluorescent Assay. The assay is designed for the qualitative and quantitative detection of measles (rubeola) antibody (IgG) in human serum. It is available for in vitro diagnostic use. Each test well in the Zeus Scientific assay contains both infected and non-infected cells. The non-infected cells act as control cells for autoimmune or other cross-reacting antibodies.

Wampole Laboratories has designed the **Wampole ISOLATOR™ 1.5 mL Microbial Tube**, a small evacuated tube designed to detect septicemia in pediatric patients and neonates. The tube contains a patented mixture of ingredients that lyses blood cells to release bacteria, prevent coagulation, neutralize bactericidal effects and inhibit phagocytosis. Clinical studies show that the **ISOLATOR** pediatric tubes detect pathogens in blood cultures an average of 24 hours sooner than conventional and radiometric

broth methods.

DOCS, Inc. has announced the initial release of its **Professional Appointment Manager (PAM)** for medical offices. The program is designed for scheduling appointments in either the single terminal or multi-user environment. **PAM** is a stand alone program. It can be "hot keyed" to operate on an integrated basis with any practice management program by using the new **DOS** version 5.0 upgrade.

Lea & Febiger has announced the fourth edition of *Disinfection, Sterilization and Preservation*, a 1,162-page reference dedicated to the control of micro-organisms. This edition encompasses all available disinfection and sterilization techniques and examines the chemical and physical agents used for sterilization. To order this edition on a 30-day approval, call **Lea & Febiger**, 1-800-638-0672.


Birtcher Medical Systems has received approval from the U.S. Food and Drug Administration to market the **Argon Beam Coagulator (ABC®)**, a gas

electrosurgery device for use in laparoscopic procedures. The **Birtcher ABC®** can be used on patients undergoing laparoscopic surgery involving the gallbladder and other abdominal organs and many laparoscopic gynecological procedures.

American Hospital Publishing has announced two new publications, *The Quality Quest: A Briefing for Health Care Professionals* and *Outpatient Rehabilitation Services: A Guide to Planning and Management*. *The Quality Quest* clarifies and defines the concept of quality in health care and identifies how and why continuous quality improvement is a part of every health care worker's job. *Outpatient Rehabilitation Services* is a guide to developing and managing successful hospital-based or freestanding outpatient rehabilitation programs. For information or to order either book, write **American Hospital Association Services Inc.**, P.O. Box 92683, Chicago, IL 60675-2683.

Lea & Febiger has released four new publications, *A Practical Handbook of Joint Fluid Analysis*, *Neuro-Ophthalmology*, *Progress in Cardiology 4/2* and *Handbook of Skin Clues and Systemic Diseases*. **Douglas P. Zipes, M.D.**, of the **Indiana University School of Medicine** is a co-author of the cardiology book. For more information or to order a book on a 30-day approval, call **Lea & Febiger** at 1-800-638-0672. □

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Methodist Hospital

Methodist Hospital of Indiana will sponsor the following courses:

- Nov. 20** - Annual Pediatric Critical Care Symposium: Pharmacology, Methodist Hospital of Indiana, Wile Hall #320, Indianapolis.
- Dec. 4** - Annual Toxicology Seminar, Westin Hotel, Indianapolis.

For more information, call Dixie Estridge, (317) 929-8215.

Indpls. Regional Heart Center

The Indianapolis Regional Heart Center will sponsor a "Nursing Cardiac Refresher Program" Dec. 3 and 4 at the Indianapolis Regional Heart Center at St. Francis Hospital in Indianapolis.

For more program information, call Brandon Roger or Marsha Breen, (317) 783-2776.

Indiana University

The Indiana University School of Medicine will sponsor these courses:

- Nov. 18-22** - Second Annual Comprehensive Transthoracic & Transabdominal Fine Needle Aspiration Biopsy Cytology, University Place Conference Center and Hotel, Indianapolis.
- Dec. 6-7** - Facial Plastic Surgery Seminar, Canterbury Hotel, Indianapolis.
- Dec. 20** - Anxiety and Depression in the Elderly: Psychotherapy and Psychopharmacology, University Place Conference Center

and Hotel, Indianapolis.

For more information, call the registrar, (317) 274-8353.

Rehabilitation medicine

The Indiana Center for Rehabilitation Medicine and the Indiana Society of Physical Medicine and Rehabilitation will co-sponsor a full day conference titled "Office Management of Common Musculoskeletal Problems."

The conference will be held Nov. 20 at the Holiday Inn Airport, Indianapolis. For more information, call Lynn Morton or Cherie Huser at (317) 290-2000 or 1-800-875-6640.

University of Michigan

The University of Michigan Medical School will sponsor these courses:

- Dec. 6-7** - Advances in Psychiatry, The Towsley Center, Ann Arbor, Mich.
- Jan. 27-29** - Fiberoptics Workshops for the Difficult Airway, Disney's Yacht and Beach Club Resorts, Lake Buena Vista, Fla.
- Feb. 2-7** - Midwinter Family Practice Update, Boyne Highlands Inn, Harbor Springs, Mich.
- Mar. 8-11** - Fiberoptics Workshops for the Difficult Airway, Red Lion's La Posada Resort, Scottsdale, Ariz.

For more information on these courses, call Angela Voeller at (313) 763-1400.

University of Wisconsin

The University of Wisconsin School of Medicine will sponsor "Orthopaedics in Primary Care" Feb. 28 and 29 at the Edgewater Hotel in Madison, Wis.

The course is designed for primary care practitioners. Participants will receive AMA Category I credit. For more information, call Sarah Aslakson at (608) 263-2856.

Ohio State University

The Ohio State University College of Medicine will sponsor these courses:

- Dec. 7-8** - Nutrition for Clinical Practice and Everyday Living.
- Dec. 14** - The New Antidepressants.
- Jan. 18** - Tardive Dyskinesia Update: Risks, Prevention and Management.

Feb. 15-16 - Infectious Diseases.

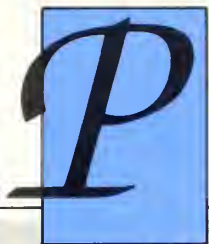
The courses will be held at the Hyatt on Capitol Square, 75 E. State St., in Columbus, Ohio. For more information, call 1-800-492-4445.

Medical College of Ohio

The Medical College of Ohio in Toledo will sponsor the following course:

- Dec. 12** - Update in Cardiovascular Disease 1991, Eleanor N. Dana Center for Continuing Health Education at the Medical College of Ohio in Toledo.

For more information about this course, call Susan Hahn, (419) 381-4237. □



PRESENTING THE RILEY CANCER SPECIALISTS



James Whitcomb Riley Hospital for Children is pleased to present a few of its hematology/oncology clinicians and researchers who are developing a state-wide center for the diagnosis and treatment of children with cancer, leukemia, and other diseases of the blood.

Left to right: front, Alexa Cheerva, M.D.; David Williams, M.D.; and Philip P. Breitfeld, M.D. Back, Robert Weetman, M.D.; Regina Jakacki, M.D.; Amy Shapiro, M.D.; and Terry Vik, M.D.

The Pediatric Hematology/Oncology Section at Riley Hospital has added several new scientists/clinicians to its staff to offer more young patients state-of-the-art care and treatment. The section currently includes 12 full-time faculty under the direction of Dr. Philip P. Breitfeld.

In addition, five full-time Pediatric Nurse Practitioners, with specialized training in the care of children with leukemia and cancer, are members of the Hematology/Oncology Section.

All are part of the multi-disciplinary team that also includes Pediatric Surgeons, Pediatric Radiologists and Radiation Oncologists, as well as Pediatric Oncology Nurses.

Many of the faculty are jointly appointed to the Herman B Wells Center for Pediatric Research and are actively involved in basic science and clinical research aimed at a better understanding and treatment of childhood cancer.

For more information, call (317) 274-8960.

JAMES WHITCOMB RILEY HOSPITAL FOR CHILDREN
Indiana University Medical Center
Indianapolis, Indiana

Wide QRS tachycardia

Tony K. Nasser, M.D.
Charles Fisch, M.D.
Indianapolis

Introduced in 1903 by Einthoven, the electrocardiogram (ECG) is the most commonly used noninvasive laboratory procedure for the diagnosis of heart disease. As a record of electrical activity of the heart, it is a unique non-invasive technology that provides information not obtainable by other methods.

The ECG is the procedure of first choice in patients with chest pain, dizziness or syncope, symptoms that may predict one or both of the two leading and potentially catastrophic cardiovascular disorders, sudden death or myocardial infarction.

Of the arrhythmias, a common and potentially lethal one is a tachycardia with a wide QRS,

referred to as wide-complex or wide QRS tachycardia. The wide QRS tachycardia may represent a supraventricular (SVT), atrial or AV junctional tachycardia with a pre-existing bundle branch block (BBB) with aberration due to a rapid rate or with W-P-W pattern, or a ventricular tachycardia (VT).

Abstract

Wide QRS tachycardia is a diagnostic challenge when confronted on a 12-lead electrocardiogram. The differential diagnosis includes: ventricular tachycardia; supraventricular tachycardia with aberration; and Wolff-Parkinson-White syndrome. Confronted with a wide QRS tachycardia, one must determine whether the origin is ventricular or supraventricular because the therapy will differ. The electrocardiographic findings of capture beats, fusion beats and atrioventricular dissociation are highly specific for ventricular tachycardia but not very sensitive. After careful assessment of the 12-lead electrocardiogram following selected diagnostic features, the correct diagnosis of the cause of wide QRS tachycardia can be made in about 90 percent of patients. This article contains a brief discussion of the diagnostic features of wide QRS tachycardia.

With wide QRS tachycardia, the physician must determine whether the origin is supraventricular or ventricular, because the therapy will differ.

Recognizing the physical finding of AV dissociation at bedside will assure a 95 percent or greater chance that the wide QRS tachycardia is ventricular in origin. However, in approximately one-half of patients, VT is associated with 1:1 retrograde conduction and, thus, absence of the physical findings of AV dissociation. Therefore, the differential diagnosis depends on a careful analysis of the ECG.

The difficulty of differential diagnosis of wide QRS tachycardia was recognized during the early days of electrocardiography. In 1920, Sir Thomas Lewis wrote,¹ "The paroxysm would seem at first blush to be of ventricular origin ... Yet this origin is not certain, for an alternative interpretation is equally plausible, namely, that the paroxysm is in

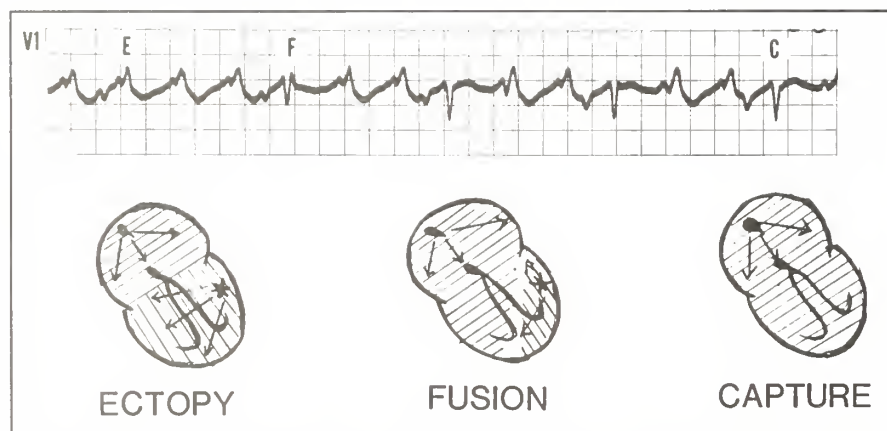


Figure 1: This illustrates VT with A-V dissociation, ventricular ectopic (E), fusion (F) and capture (C) complexes. (From Fisch C, Pinsky ST: Diagnosis of ventricular tachycardia. *J Indiana St Med Assoc*, 2:184, 1957.)

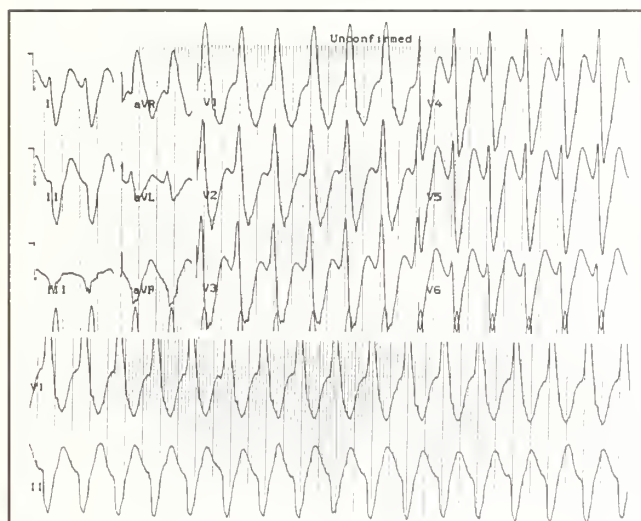


Figure 2: Wide QRS tachycardia with right bundle branch pattern. The monophasic QRS in lead V_1 coupled with the rS pattern in lead V_6 is highly specific for VT.



Figure 4: Wide QRS tachycardia with a LBBB pattern. The duration of R in V_1 of 80 msec and the interval from the onset of the R to the nadir of the S wave of 130 msec indicate a VT.

Figure 5: The criteria of VT in presence of LBBB wide QRS tachycardia in lead V_1 include an R wave of 30 msec or longer (1) notch on the downstroke of the S wave (2) and then from onset of the R wave to nadir of the S wave (3) of 70 msec or longer. (Modified from Kindwall K, et al.¹³)

RBBB QRS MORPHOLOGY					
Lead V_1			Lead V_6		
QRS Complex	SVT with Aberrancy	Ventricular Tachardia	QRS Complex	SVT with Aberrancy	Ventricular Tachardia
	0	100		95	5
	39	61		67	33
	86	14		13	87
	92	8		0	100
	0	100		0	100
	5	95		0	100
	0	100			

LBBB QRS MORPHOLOGY					
			Lead V_6		
QRS Complex	SVT with Aberrancy	Ventricular Tachardia	QRS Complex	SVT with Aberrancy	Ventricular Tachardia
	48	52			
	54	46			
	0	100			
	0	100			

Figure 3: This figure illustrates the relative frequency expressed in percent of the different QRS patterns present in ventricular tachycardia or supraventricular tachycardia with aberration. (Modified from Wellens et al.^{10, 11})

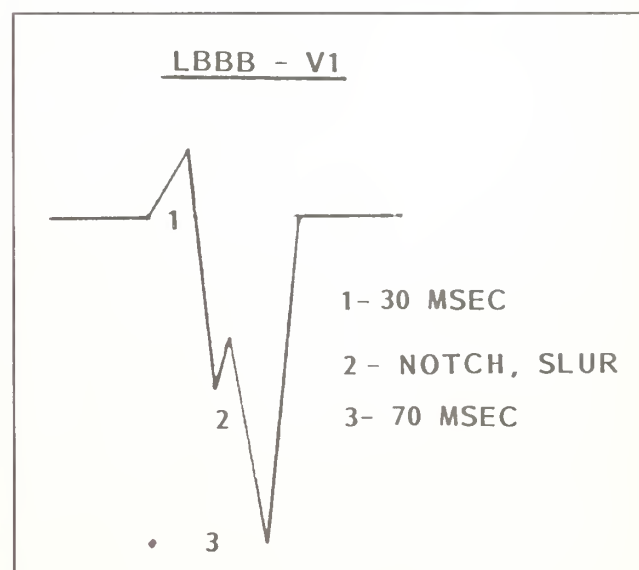


Figure 5.

reality auricular ... aberration is known to be a frequent phenomenon in patients who are the subject of paroxysmal tachycardia. It is impossible to decide the exact origin of a paroxysm of the kind illustrated in the present figure unless its first or last beat is recorded."

Because of the clinical significance of wide QRS tachycardia, there has been a continued effort to identify criteria diagnostic of VT. The early and classical markers of VT, including captures, fusions and AV dissociation (independent supraventricular rhythm), although highly specific with a specificity of over 90 percent to 95 percent for VT, have an extremely low sensitivity, probably no greater than 5 percent for captures and fusions and 25 percent for AV dissociation.²⁻⁷

With the advent of intracar-

diac recording and the ability to differentiate between the two mechanisms of wide QRS, attention has been focused on the QRS pattern, with the assumption that the QRS pattern will aid in differentiation of the mechanisms. It has been suggested, based on retrospective and prospective studies correlating the 12-lead ECG with His bundle studies, that with a careful assessment of the ECG a correct diagnosis of the cause of wide QRS tachycardia can be made in approximately 90 percent of patients.⁸⁻¹³

A brief discussion of the diagnostic features of VT, SVT with aberration including W-P-W, follows:

Ventricular tachycardia

The most reliable criteria of VT are captures, fusions and AV dissociation (Figure 1). While their

specificity is high, the sensitivity is low and, thus, rarely helpful.

Other features favoring VT include marked left axis deviation and a QRS duration in excess of 0.14 seconds. The exceptions to the latter may be SVT with pre-existing BBB, electrolyte abnormalities, the effect of antiarrhythmic drugs and W-P-W with antidromic tachycardia.

When focusing on the BBB pattern during wide QRS tachycardia, a physician should first decide whether the pattern is right bundle branch block (RBBB) or left bundle branch block (LBBB).

With RBBB pattern of wide QRS tachycardia, a monophasic (R) or biphasic QRS complex (qR, QR, RS) in lead V₁ and QRS complexes with qR, QS, rS pattern in lead V₆ are highly specific for VT (Figures 2 and 3).

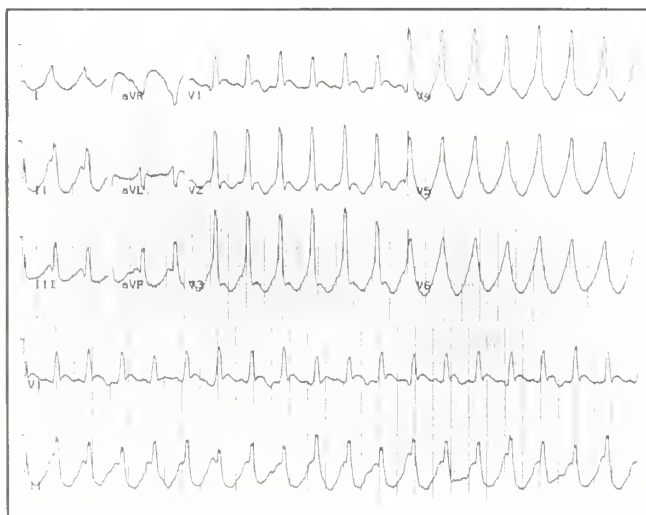


Figure 6: Wide QRS tachycardia with RBBB configuration. The positive concordance, i.e., R waves in leads V₁ and V₆, is diagnostic of VT with the occasional W-P-W with antidromic tachycardia (See Figure 8).

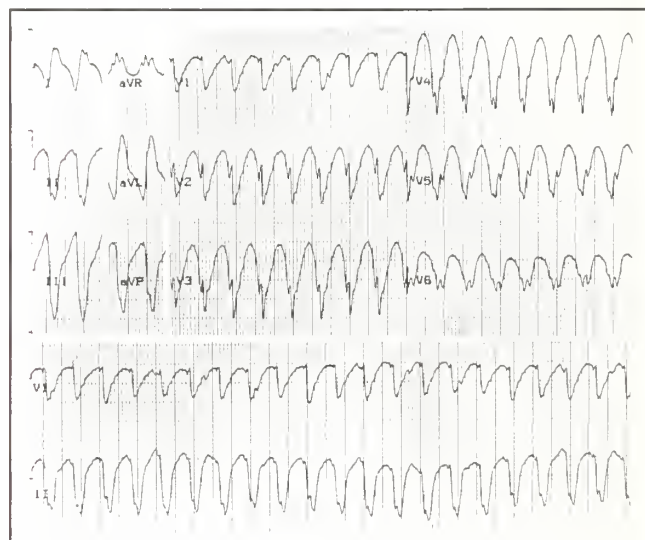


Figure 7: Wide QRS tachycardia with LBBB configuration. The negative concordance, i.e., S wave in leads V₁ and V₆, is diagnostic of VT.

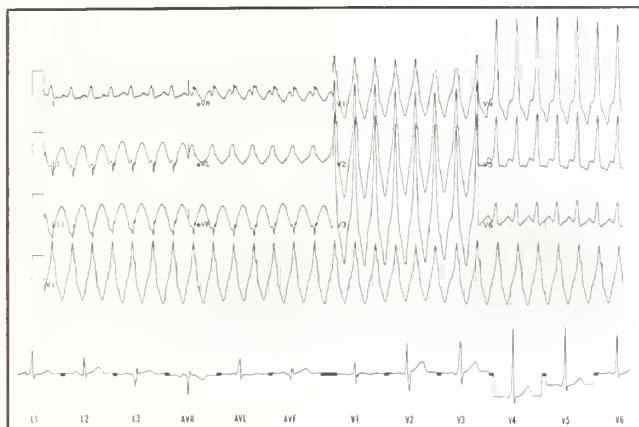


Figure 8: Wide QRS tachycardia with a positive concordance due to conduction through an accessory pathway. Although positive concordance is consistent with VT, it may be recorded with W-P-W. The bottom trace, the control ECG, demonstrates the characteristic findings of W-P-W, namely a short PR interval and a delta wave. (From Fisch C: *Electrocardiography of Arrhythmias*. Philadelphia, Pa: Lea & Febiger; 1990:99.)

With LBBB pattern of wide QRS tachycardia, any q wave, be it qR, QS or QRS pattern in V_6 , is highly specific for VT. In lead V_1 , an initial R wave of 30 msec or greater in duration, presence of a slur on the downstroke of the S wave and an interval from the onset of the R wave to the nadir of the S wave of 70 msec or longer are highly specific for VT (Figures 4 and 5).

While a positive or negative precordial concordance is highly specific for VT (Figures 6 and 7), positive concordance may be seen in W-P-W with antidromic tachycardia (Figure 8).

Supraventricular tachycardia with aberration

SVT with pre-existing BBB, rate-dependent aberration or W-P-W may simulate VT. In fact in these situations, an interpretation of

wide QRS tachycardia may not be possible (Figure 9). While a triphasic QRS pattern (rsR) in V_1 and qRS in V_6 is highly indicative of aberration, it does not always exclude VT (Figure 10).

With ventricular activation along an accessory pathway, wide QRS tachycardia in W-P-W may be difficult or impossible to differentiate from VT because the sequence of ventricular activation is abnormal in both. The pattern of positive concordance, while highly specific for VT, also can be recorded in W-P-W with a left posterior accessory pathway.

In the presence of depressed intraventricular conduction, caused by hyperkalemia, antiarrhythmic medications and intramyocardial delay due to ischemic or structural changes, SVT may not be distinguishable from VT.

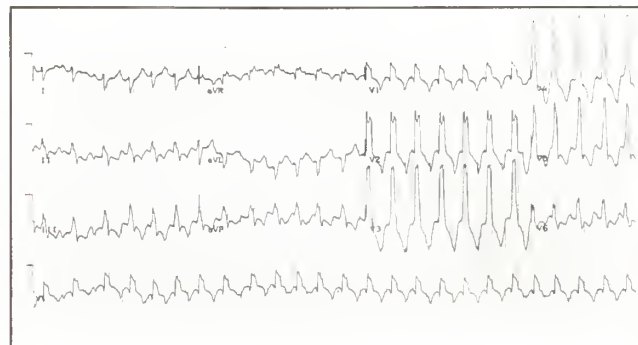


Figure 9: Wide QRS tachycardia due to supraventricular tachycardia, with pre-existing RBBB. The qR pattern in lead V_1 and rS in lead V_6 are highly suggestive of VT. A definitive diagnosis would be impossible were it not for the evidence of pre-existing RBBB as evidenced by the first two cycles, sinus in origin.

Summary

- A differential diagnosis between VT and SVT with aberration based on the 12-lead electrocardiogram as the cause of wide QRS tachycardia is possible in about 90% of the patients.
 - Criteria with a high specificity but a very low sensitivity include captures, fusions and A-V dissociation.
 - Marked left axis deviation and a QRS duration greater than 0.14 seconds favor VT.
 - In wide QRS tachycardia with a RBBB pattern, a monophasic (R) or biphasic (qR, QR, RS) QRS complex in lead V_1 is highly specific for VT. In lead V_6 , rS, QS or qR patterns similarly favor VT.
 - In wide QRS tachycardia with LBBB pattern, a qR or QS pattern in lead V_6 is highly specific for VT. In lead V_1 , an initial

R greater than 30 msec in duration, slur on downstroke of the S wave and duration from onset of QRS to nadir of the S wave greater than 70 msec similarly favor VT.

- QRS complex of 140 msec or less in association with a triphasic QRS pattern in lead V₁ favors aberration. ○

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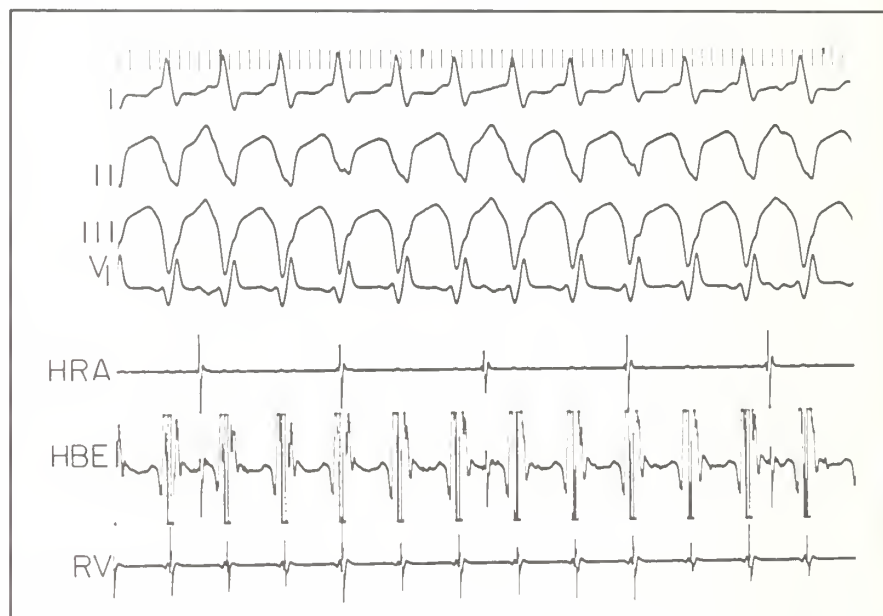


Figure 10: Wide QRS tachycardia with a QRS of approximately 125 msec and an rsR QRS pattern in lead V₁ strongly suggest a supraventricular origin of the tachycardia, this despite the A-V dissociation. The His bundle recording, however, indicates the presence of VT as attested to by absence of His bundle potential normally preceding a supraventricular QRS. (From Fisch C: *Electrocardiography of Arrhythmias*. Philadelphia, Pa: Lea & Febiger; 1990:94.)

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Coumadin skin necrosis in a patient with a free protein S deficiency:

Case report and literature review

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Oral anticoagulants are widely used in medical practice. Current indications include treatment of thromboembolic phenomena, prophylaxis of venous thrombosis after hip surgery and prevention of arterial emboli in patients with diseased or prosthetic cardiac valves. Hemorrhagic complications are the most common adverse reactions to oral anticoagulation. Coumadin skin necrosis is a rare complication that also can occur.

Coumadin skin necrosis was first described in 1943 by Flood et al,¹ who reported a case of gangrene of the breast in a patient on coumarin. They attributed this to "thrombophlebitis migrans disseminata," believing it was part of an underlying coagulopathy. The condition was first described in English literature in 1961 by Kipen.² Further case reports ensued, including an article by Nalbandian et al³ in 1965.

The pathophysiology of the condition is not clarified, although persuasive evidence has recently been presented linking coumadin-

induced thrombosis of the dermal microcirculation with low levels of protein C or free protein S, known vitamin K-dependent plasma inhibitors of coagulation.

The case of a patient with a functional protein S deficiency is presented to confirm the importance of this vitamin K-dependent factor in the development of coumadin skin necrosis.

Case report

A 34-year-old white woman was admitted to our hospital with a right suprapatellar abscess.

One month before admission, she underwent a total abdominal hysterectomy and bilateral salpingo-oophorectomy for endo-

metrial adenocarcinoma. Postoperatively, she developed a right femoral artery embolus and a left superficial femoral artery embolus. She was treated with surgical embolectomy and heparin therapy, followed by conversion to coumadin for long-term anticoagulation.

One month later, she developed a right suprapatellar abscess. Her coumadin was discontinued, and heparin was started. Two weeks later, coumadin treatment again was added to the heparin regimen. The patient received 10 mg orally for three successive days. On the evening of the fourth day after restarting coumadin, she developed large

Abstract

Oral anticoagulants are widely used in clinical practice. Hemorrhagic complications are the most frequent adverse reactions, but a rarer complication, coumadin skin necrosis, also can be seen. The recently described association with low levels of protein C and/or free protein S is of importance in the pathophysiology of coumadin skin necrosis. This article describes the case of a patient with a functional protein S deficiency who developed coumadin skin necrosis. The condition is described, and a discussion of theories regarding its pathophysiology is presented. Current treatment recommendations are listed.

erythematous areas over the right and left breasts, which were tender to palpation and indurated. During the next 24 hours, she developed a necrotic center of 1 cm diameter in the right breast.

Dermatology and hematology specialists were consulted, and they agreed the changes were consistent with coumadin skin necrosis. A skin biopsy of the involved area was obtained and revealed hemorrhage and necrosis throughout the dermis, accompanied by fibrin thrombi in some of the venules, consistent with coumadin necrosis. Coumadin therapy was discontinued, and the patient was anticoagulated with subcutaneous injections of heparin. She underwent bilateral mastectomies and skin grafting because of the extensive skin involvement.

Laboratory evaluation was performed during both hospital courses, and the results are shown in the *Table*. The most pertinent result was the lack of decline in the protein C level, while the free protein S level was markedly decreased when the patient presented with the suprapatellar abscess. Even after coumadin was discontinued with the onset of skin necrosis, free protein S levels failed to reach normal levels.

Discussion

Necrosis of the skin remains a rare complication of coumadin. It typically occurs as a sudden onset of pain in the area involved. Following this, petechial hemorrhage develops, which coalesces to form purple ecchymotic lesions with surrounding erythema. Hemorrhagic blisters appear, indicating the beginning of irreversible skin necrosis. Black eschar finally forms and sloughs. The actual depth of involvement and residual

defect are highly variable, some resolving spontaneously, others requiring skin grafting and/or amputation.

Teepe et al⁵ and Cole et al⁶ described the typical clinical features. It affects .01% to .1% of patients receiving coumadin. The patients are usually obese women. The lesions most frequently appear on the breast, buttock or thigh. The condition is usually unilateral but also may appear bilaterally, with multiple lesions evident in 30% of cases. The lesions appear from day three to six of initiating coumadin in 74% of cases, and most have therapeutic or subtherapeutic prothrombin times. The occurrence of skin necrosis does not depend on pre-

vious exposure.

The pathophysiology involved in the development of coumadin necrosis has been unclear for many years. Initially, it was thought that coumadin exerted a direct toxic effect on vascular endothelium,³ but the lesions seen with coumadin necrosis were not related to drug dose or duration of therapy.⁷ This theory, then, seemed an unlikely explanation.

In the early 1980s, the focus shifted to the role of protein C and protein S, two vitamin K-dependent plasma proteins that function as inhibitors of coagulation. It was known by then that the rate of decline in the vitamin K-dependent coagulation factors II, VII, IX and X following

Table

Test	Date	Result	Normal range	Comment
Prothrombin Time	7/31/89	12.5	11-14	no medications on coumadin
	11/30/89	25.0		
Partial Thromboplastin time	7/31/89	24.0	24-30	no medications
Anticardiolipin IgM	12/8/89	<1:8	<1:8	on coumadin off coumadin
	1/4/90	<1:8		
Anticardiolipin IgG	12/8/89	<1:8	<1:8	on coumadin off coumadin
	1/4/90	<1:8		
Antithrombin III activity	9/19/89	92%	73.0-117%	on coumadin
Protein C antigen (% of normal)	9/19/89	104%	62.5-117%	on coumadin
	11/30/89	82%		on coumadin
	1/01/90	115%		on coumadin
Total protein S (% of normal)	9/19/89	129%	79.0-151.3%	on coumadin
	11/30/89	82%		on coumadin
	1/16/90	178%		off coumadin
Free protein S (% of normal)	9/19/89	31%	49.1-137.9%	on coumadin
	11/30/89	0%		on coumadin
	1/16/90	43%		off coumadin

coumadin was related to their half-lives.⁸ Factor VII and protein C have very short half-lives in comparison to other clotting factors. Therefore, loading doses of coumadin lower the levels of protein C and factor VII before other clotting factors, leaving the intrinsic clotting cascade intact.

The absence of protein C to inhibit coagulation leads to a transient hypercoagulable state. In 1984, McGehee et al⁹ described the development of coumadin necrosis in a patient with a hereditary deficiency in protein C, thus confirming the association. Many authors subsequently have supported the relationship between low levels of protein C and coumadin skin necrosis.^{5,10-12}

However, several case reports,¹³⁻¹⁵ including this case, have shown the occurrence of coumadin skin necrosis in patients with normal levels of protein C. This led to the theory that protein S levels also may be implicated in the development of coumadin skin necrosis.

Protein S is a nonenzymatic cofactor for protein C¹⁶ and exists in plasma as a free and bound protein.¹⁷ Protein S is unable to act as a cofactor for protein C when it is in the bound state. Since the half-life of protein S is three to four days, loading doses of coumadin do not quickly lower protein S levels. However, several disorders have been associated with an acquired functional protein S deficiency.

In 1985, Comp et al¹⁸ showed that during pregnancy, in the nephrotic syndrome and in systemic lupus erythematosus, a functional protein S deficiency occurs as a result of increased binding of protein S to C4b-binding globulin, an inhibitor of the classic complement system. Sub-

sequently, free protein S levels also have been found to be reduced in women who take birth control pills,¹⁹ in liver disease and in disseminated intravascular coagulopathy.²⁰ Recently, patients with the antiphospholipid syndrome,¹³ diabetes mellitus²¹ and sickle cell anemia²² also have been shown to have abnormally low levels of free protein S. Protein C activity depends on free protein S acting as a cofactor. Therefore, low free protein S may cause a hypercoagulable state through the decreased ability to control coagulation.

The role of protein S in the pathophysiology of coumadin skin necrosis is now clearer. During the initiation of coumadin, when protein C levels decrease rapidly due to its short half-life, the absence of free protein S to act as a cofactor for protein C can result in a hypercoagulable state and predispose patients to the development of skin necrosis.

Comments

Our patient experienced an unusual degree of thrombotic events. Her laboratory evaluation was remarkable only for low levels of free protein S. Several factors may cause increased binding of protein S, resulting in a functional protein S deficiency. Our patient was on estrogen replacement therapy after her bilateral oophorectomy. Although estrogen itself has not been shown to directly cause increased protein S binding, the finding of increased binding in pregnancy and with oral contraceptives implicates estrogen.

C4b-binding globulin exhibits characteristics of an acute phase reactant.²⁰ Thus, the state of inflammation caused by the patient's abscess also may have

caused increased binding of protein S. Our patient also may have an inherited abnormality in protein S, which as discussed by Comp et al,¹⁷ is caused by increased binding of protein S.

Management

With these prevailing concepts on the pathophysiology of coumadin necrosis, the following tentative recommendations can be made:

First, coagulation studies, including protein C and protein S (total and free) levels, should be performed in patients with a clinical presentation consistent with a hypercoagulable state. These should be measured since some people suffer from a hypercoagulable state because of isolated deficiencies in one of the proteins involved in the inhibition of coagulation. Physicians should identify these people because they also are at risk for developing coumadin skin necrosis.

Second, heparin therapy should be started before treatment with coumadin. Heparin decreases the activity of the coagulation pathway by other mechanisms and may prevent the development of a hypercoagulable state.

Third, patients with any condition associated with decreased free protein S levels have an increased risk for developing coumadin skin necrosis. Coumadin should not be used in these patients before they are fully anticoagulated on heparin and have a prolonged partial thromboplastin time.

Finally, if signs of coumadin skin necrosis appear, coumadin should be discontinued immediately, and heparin should be continued or reinstituted. Patients also should receive fresh frozen plasma to replete the levels of

protein C and protein S.²³ □

For a complete list of references, write INDIANA MEDICINE, 322 Canal Walk, Indianapolis, IN 46202-3252.

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in Milwaukee, wrote this article while a resident at the Indiana University Medical Center in Indianapolis. The paper was presented at the annual scientific meeting of the Indiana Chapter of the American College of Physicians.

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Thoracolumbar spinal fractures – Concepts of treatment

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Indianapolis

After approximately 40 years of experience worldwide in the treatment of thoracolumbar spinal fractures with surgical intervention and instrumentation,



Figures 1 A and 1B: Anteroposterior and lateral radiographs of Harrington rods with supplemental sublaminar wires extending from T₁₀ to L₃ for an L₁ fracture.

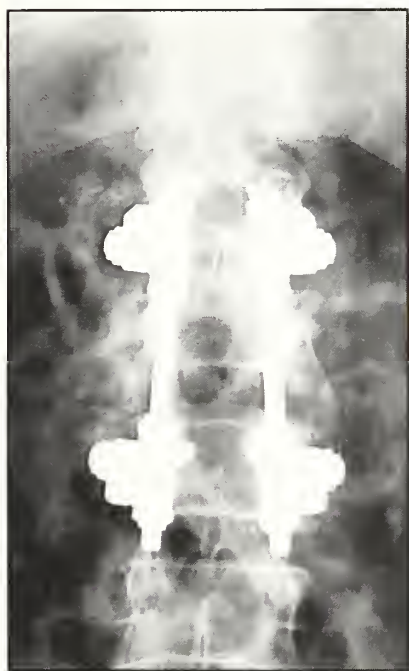
Abstract

The treatment of thoracolumbar spinal fractures has evolved significantly in the last 50 years. Clear classification systems now allow physicians to predict which fracture patterns will require surgery and which may be adequately treated non-operatively. These indications, as well as a brief overview of thoracolumbar spinal fracture care, are presented.

several clear guidelines in this area have been identified.

Some fractures are inherently stable and require only brace support to afford a rapidly renewed activity level. Surgical stabilization of serious fractures with the resultant ability to allow the patient to be mobilized quickly after an injury is now agreed to be the optimal treatment goal. When the patient is not kept at extended bed rest, pulmonary atelectasis, deep venous thrombosis, neurological complications, osteoporosis and skin breakdown are minimized. Likewise, when the fracture is stabilized, the potential risks of suffering further neurological damage due to repositioning and of requiring nursing care are alleviated. Rapid surgical intervention with shorter hospital stays also improves a patient's outlook and outcome and reduces the costs of hospitalization.

It was not until 1953 that a



Figures 2A and 2B: Anteroposterior and lateral radiographs of the A.O. Fixateur Interne spanning from L₁ to L₃ for an L₂ burst fracture.

fracture classification method and instrumentation technique were closely evaluated.¹ Holdsworth and Hardy categorized fractures based on an anterior and posterior column of stability and recommended open reduction and internal fixation with spinous process plates followed by three months of bed rest. However, long-term follow-up showed less than ideal results and late occurring deformity. In 1958, Harrington first applied dual distraction rods for thoracolumbar fracture reduction.² His method allowed for a more anatomic alignment of fractures, as it was a more dynamic system (Figure 1).

The reduction principle of the Harrington rods was that of "three-point-contact," distraction at each end with anterior pressure at the site of deformity. Having only two points for attaching the rods to the spine, a body cast with

bed rest for several months was required. It was soon observed that if the distraction rods extended from approximately three



vertebral levels above the fracture level to three vertebral levels below, a greater biomechanical advantage was obtained for realignment. It was eventually realized, however, that "successfully" treated patients, having flat stiff lumbar spines, were often in worse condition than if they had been treated by the non-operative methods used previously. These patients often experienced lower back pain and fatiguing forward flexed postures.

To overcome the disadvantages of immobilization and long straight rodding methods, Luque and associates began using contoured rods wired to the spine at each individual vertebral level, thus providing "segmental" fixation and more physiologic alignment.³ The new technique allowed for greater mechanical stabilization with a broader distribution of the stressful forces. Despite improved initial results, a high iatrogenic neurologic injury rate was soon apparent. The sublaminar wiring technique bore a great potential for damaging the



Figures 3A and 3B: Anteroposterior and lateral radiographs showing anterior instrumentation stabilizing T12 to L2 for an L₁ burst fracture.

spinal cord, as all wires passed through the spinal canal. The benefit of "segmental" stabilization was clearly recognized, however, for its improved arthrodesis rates and added strength of construction.

The French then provided the next wave of insight. In 1963, Roy-Camille began applying plates to the posterior spine combined with the insertion of screws down the vertebral pedicles at each level.⁴ In the 1980s, Cotrel and Dubousset introduced a new kind of rod to attach pedicle screws and multiple hooks in varying orientations.⁵ Many subsequent posterior rodding and plating methods have followed.^{6,7,8} The posterior instrumentation system that currently allows for

the shortest segment of immobilization (one level above and below the fracture) uses pedicular fixation and approximates normal spinal contours is the Swiss A.O. Fixateur Interne (Figure 2).⁹ Most segmental fixation systems allow for spinal canal decompression by reduction of the posterior longitudinal spinal ligament and may be supplemented by posterior transpedicular decompression techniques to relieve bone fragment pressure on the neural elements.¹⁰

Controversy exists as to whether posterior methods are sufficient or if, in certain instances, spinal fractures should also be decompressed and reconstructed anteriorly through transthoraco-abdominal expo-

sure. Bradford and McBride and McAfee, Bohlman and Yuan believed incomplete decompressions often occur with solitary posterior approaches and that in certain instances a combined procedure was warranted.^{11,12} Certain severe fractures may even be addressed only anteriorly with a decompression (using transthoraco-abdominal approach, anterior to the spinal cord), reconstruction and instrumentation (Figure 3).^{13,14} In numerous cases, however, anterior instrumentation alone failed to maintain stability and deformity reduction during fracture healing.

Relative to fracture biomechanics, Denis identified a third (middle) column of spinal stability and a resultant classification system after an extensive review of 412 thoracolumbar spinal fractures.¹⁵ By looking at the appropriate plane radiographs and computed tomography scans, one could localize the columns of stability and instability and therefore decide how to appropriately treat each individual fracture.⁹ A further simplification of that system by McAfee described fractures as: 1) wedge compression; 2) stable or unstable burst; 3) chance; 4) flexion-distraction; or 5) translational injuries (Figure 4).¹⁶

There are now indications for relative and emergent surgical intervention for thoracolumbar spinal fracture care.¹⁷ Emergency surgery should proceed if progressive neurologic deterioration is occurring or if an acute spinal dislocation is present with residual neurological function. Surgical intervention should be applied optimally within 72 hours if, at the affected level: 1) two or more spinal "stability" columns are rendered unstable according to the triple column theory; 2)

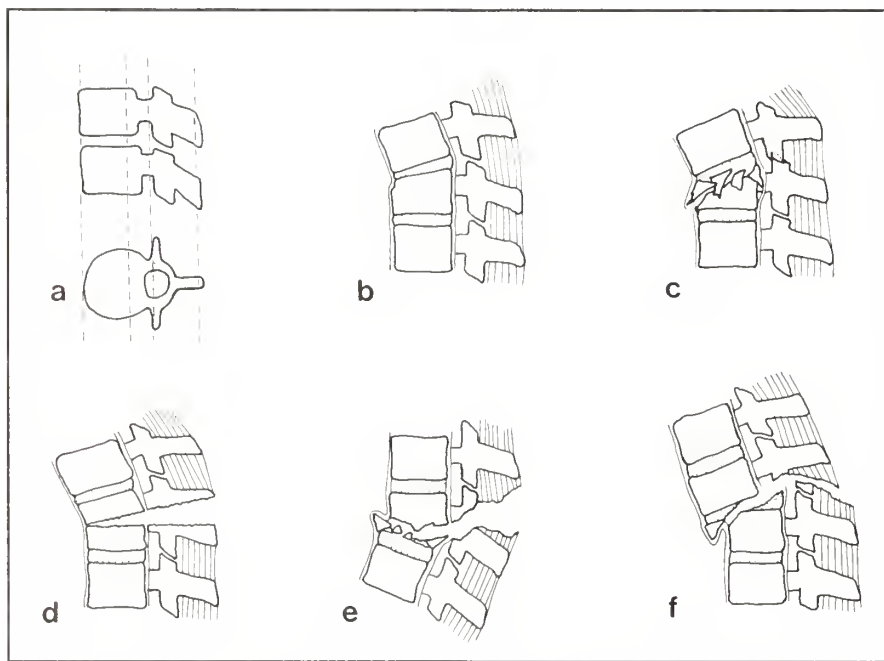


Figure 4: A: Three columns of spinal biomechanical stability - anterior, middle and posterior. B: Compression fracture - anterior column injury. C: Burst fracture - anterior and middle column injury. D: Chance fracture - three column injury with anterior longitudinal ligament intact. E: Severe flexion/distraction fracture - three column injury. F: Fracture dislocation - three column injury, gross instability.

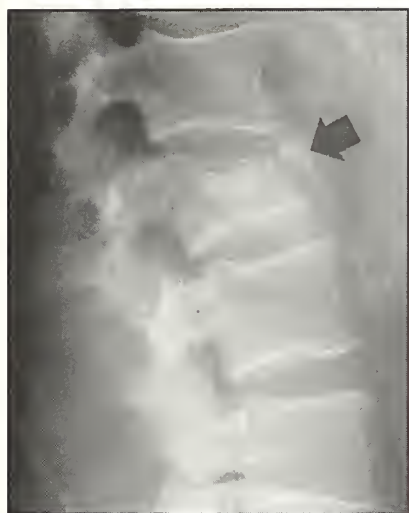


Figure 5A: Lateral radiograph showing greater than 50% anterior column collapse in an L2 burst fracture.

greater than a 50% anterior vertebral body compression and/or a 50% or greater compromise of the spinal canal is present (Figure 5); or 3) a partial neurologic deficit exists.

The surgery then performed should: 1) stabilize the fractured vertebrae with as few spinal segments being immobilized and fused as is necessary to provide for rigid fracture immobilization; 2) decompress the spinal canal adequately (to greater than 75% patency) to minimize the likelihood of late pain or neurologic deterioration due to neural element compression and; 3) provide instrumentation construction that allows the patient to be mobilized in the upright position immediately after surgery to minimize cardiopulmonary complications in the multi-traumatized patient.

Two areas that require continued research are the minimization of long-term neurologic damage incurred at the moment of injury

and the development of surgical techniques that will restore the axial skeleton to its pre-injury mobility state. A nationwide study is underway to evaluate the efficacy of high-dose methyl prednisolone administration for spinal cord injured patients immediately upon arrival in the emergency department in an effort to maximize the return of neurologic function.¹⁸ The second area is being approached with the possibility of fusing shorter and shorter spinal segments with intrapedicular instrumentation systems and by attempting to develop spinal replacement prostheses.¹⁹

In summary, a patient with a thoracolumbar spinal fracture should be considered for referral to a tertiary care facility for further evaluation and possible surgical stabilization when: 1) any neurologic deficit is present; 2) any gross disruption of the spinal column alignment is seen on either the AP or lateral radiograph;

3) 25% or greater anterior column collapse is noted in the affected vertebral body; 4) widening of the intrapedicular distance is noted at the fracture level on the AP radiograph; or 5) 25% or greater spinal canal compromise is present at the involved segment as seen on either the lateral radiograph or CT scan. □

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Figure 5B: Computerized tomography revealing greater than 50% canal compromise due to a retropulsed bone fragment in the same injury.

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■ drug names

Look-alike and sound-alike drug names

	TIOCONAZOLE	TERCONAZOLE
Category:	Vaginal preparation	Antifungal agent
Brand name:	Vagistat, Fujisawa SK	Terazol 7, Ortho
Generic name:	Tioconazole	Terconazole
Dosage forms:	Vaginal ointment	Vaginal cream
	K-PHOS NEUTRAL	NEUTRA-PHOS K
Category:	Mineral & electrolyte	Mineral & electrolyte
Brand name:	K-Phos Neutral, Beach	Neutra-Phos K, Willen
Generic name:	(Combination drug)	(Combination drug)
Dosage forms:	Tablets	Capsules

Benjamin Teplitzky, R. Ph.
Brooklyn, N.Y.

Look-alike and sound-alike drug names can be misinterpreted by a nurse reading doctors' orders or by a pharmacist compounding physicians' prescriptions.

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Young woman with large chest mass

Jeffrey M. Barkmeier, M.D.
Dennis P. Mishler, M.D.
Joel C. Hammond, M.D.
Indianapolis

A 38-year-old woman, a nonsmoker from Pakistan, went to the emergency department with a sudden onset of heaviness in her chest. The results of physical exam, laboratory studies and electrocardiogram were normal, and a myocardial infarct was ruled out. Chest radiographs demonstrated a large, right paratracheal mass (Figure 1). Old chest films were not available for study, so com-

puted tomography (CT) was performed to further evaluate the mass. CT showed a 5 x 5 cm homogeneous, right anterior mediastinal mass with flecks of central calcification. A magnetic resonance imaging was done to further delineate the anatomy (Figure 2). This showed a 5 x 5 cm right anterior mediastinal mass with indentation on the superior vena cava. The mass was low signal on T₁-weighted images and high signal on T₂.

Differential diagnosis for this mass included mediastinal tumors, such as thymoma, teratoma and fibroma. Considerations for

lung mass were bronchogenic carcinoma, hamartoma, bronchial adenoma, leiomyoma and other less common tumors.¹⁻³

Because of the patient's age, lack of old films and the size of the mass, it was surgically resected to confirm histology. At surgery a median sternotomy was performed, and a firm, pearly white mass was found in a subpleural location in the right upper lobe. The mass was easily removed with a wedge resection. The patient had an unremarkable hospital course. Pathology confirmed a well-circumscribed 5 x 5 x 4 cm mass of firm pearly white



Figure 1: Chest radiograph showing a large right paratracheal mass.

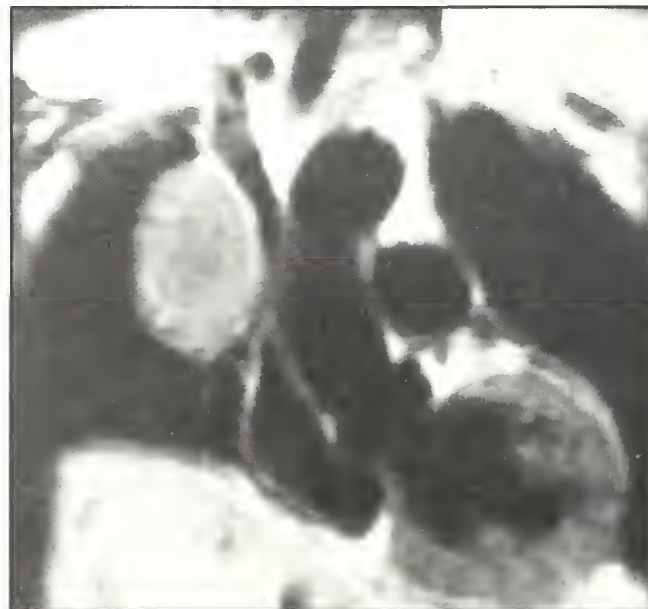


Figure 2: Coronal T₁-weighted MRI showing a large homogenous mass indenting the superior vena cava.

tissue. Histology demonstrated lobulated masses of cartilage surrounded by fibromyxomatous stroma and dilated vessels. There was no cellular atypicality and the submitted lung tissue was negative for malignancy. The diagnosis of a pulmonary hamartoma was made.

Discussion

Benign tumors represent approximately 1% of all lung tumors and 5% to 10% of surgically resected lung tumors.¹ Hamartoma is the most common benign neoplasm of the lung, accounting for 5.7% of solitary pulmonary nodules.² The peak incidence is in the sixth decade of life, and they are rare under the age of 30.⁴ The pulmonary hamartoma was originally believed to be a congenital malformation or an acquired tumor from inflammatory processes. However, the concept of its being a benign tumor has gathered wide support. The fact that it has a predominantly late peak age incidence and is known to increase in size in middle age support this neoplastic concept.¹

More than 90% of pulmonary hamartomas are parenchymal and are rarely endobronchial.^{3,4} The typical gross pathologic features include a firm, well-circumscribed, gray-white mass.² Histo-

logic features include disorganized, mature cells or tissue native to the organ.⁵ Typically, they include hyaline cartilage surrounded by loose, fibroelastic tissue. There also may be variable amounts of adipose, epithelial tissue, smooth muscle, inflammatory cells and calcification.¹⁻⁵

Since most of these neoplasms are parenchymal in location and asymptomatic, they are often incidental findings on chest radiographs. Endobronchial hamartomas, however, more often appear with obstructive symptoms. These include cough, hemoptysis and other vague chest symptoms.¹⁻⁴

The typical radiographic appearance of a pulmonary hamartoma is a well-defined, solitary, peripheral nodule. The mass is almost always less than 4 cm in diameter.² Approximately 25% to 30% contain calcifications,² and 10% have the appearance of the pathognomonic "popcorn ball" calcification.⁶ CT can demonstrate the actual size of the lesion, presence and pattern of calcification and density of the lesion. Siegleman et al used specific characteristics on CT to correctly diagnose pulmonary hamartomas in 64% of the cases, without the need of a further invasive procedure. The CT criteria they developed

include a diameter of 2.5 cm or less, a well-defined edge, focal collections of fat or alternating fat collections with calcification.^{3,7} □

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2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

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Drug Interactions: No interactions have been observed with theophylline, chlorazepate, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

Carcinogenesis, Mutagenesis, Impairment of Fertility: A 2-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterodermatoma-like (ECL) cells in the gastric oxyntic mucosa. In a 2-year study in mice, there was no evidence of a carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a 2-generation, perinatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

Pregnancy—Teratogenic Effects—Pregnancy Category C—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belled rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in 1 fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spinal bifida, hydrocephaly, and enlarged heart in 1 fetus. There are, however, no adequate and well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers: Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

Pediatric Use: Safety and effectiveness in children have not been established.

Use in Elderly Patients: Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events were due to the drug.

Hepatic: Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L) in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to 3 times the upper limit of normal, however, did not significantly differ from that in placebo patients. All abnormalities were reversible after discontinuation of Axid. Since market introduction, hepatitis and jaundice have been reported. Rare cases of cholestatic or mixed hepatocellular and cholestatic injury with jaundice have been reported with reversal of the abnormalities after discontinuation of Axid.

Cardiovascular: In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in 2 individuals administered Axid and in 3 untreated subjects.

CNS: Rare cases of reversible mental confusion have been reported.

Endocrine: Clinical pharmacology studies and controlled clinical trials showed no evidence of antihandrogenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

Hematologic: Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H₂-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumentary: Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity: As with other H₂-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

Other: Hypernatremia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

Overdosage: Overdoses of Axid have been reported rarely. If overdosage occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis does not substantially increase clearance of nizatidine due to its large volume of distribution.

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Action: Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors; its effect on blood pressure, if any, would be to lower it; however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

Indications: Yocon® is indicated as a sympathicolytic and mydriatic. It may have activity as an aphrodisiac.

Contraindications: Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

Warning: Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

Adverse Reactions: Yohimbine readily penetrates the CNS and produces a complex pattern of responses in lower doses than required to produce peripheral alpha-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.^{1,2} Also dizziness, headache, skin flushing reported when used orally.^{1,3}

Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

How Supplied: Oral tablets of Yocon® 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

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Carpal tunnel syndrome

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Richard S. Idler, M.D.
James C. Creighton, M.D.
Indianapolis

First described by Sir James Paget in 1863, carpal tunnel syndrome is easily the most common compression neuropathy of the upper extremity. Phalen emphasized the frequency of the condition, its presenting symptoms, physical findings and treatment.¹

Anatomy and pathology

The carpal tunnel is an anatomic passageway bounded dorsally and laterally by the hemicircular arrangement of the carpal bones and on the palmar surface by the deep transverse carpal ligament. Nine digital flexor tendons and the median nerve pass through this tunnel (Figure 1). At the dis-

tal end of the tunnel, the median nerve divides into five branches, the most radial of which, the motor branch, innervates the thenar muscle group. The ulnar four branches provide sensation to the thumb, index, middle and radial half of the ring finger. The radial and ulnar arteries and the ulnar nerve do not pass through the tunnel.

Any lesion that increases the volume inside this unyielding passageway may produce compression of the median nerve and initiate the symptoms of carpal tunnel syndrome. In most cases, there is a nonspecific thickening of the tenosynovium, although tenosynovitis associated with rheumatoid arthritis, tuberculosis, atypical acid fast bacillus infections, suppurative tenosynovitis, gout, amyloidosis or sarcoidosis may produce carpal tunnel syn-

drome. Additional systemic conditions that have been associated with this condition include thyroid imbalance, acromegaly, multiple myeloma, diabetes mellitus, alcoholism and hemophilia. Hormonal changes resulting from menopause, pregnancy, hysterectomy or the use of birth control or hormonal replacement medications have also been implicated. Other space-occupying lesions that may embarrass the median nerve in the carpal tunnel include wrist fractures, tumors, thrombosis of a persistent median artery and anomalous muscles and tendons.²

Incidence

More than 50% of cases of carpal tunnel syndrome occur in patients between 40 and 60 years of age. Although the condition occurs at least twice as frequently in

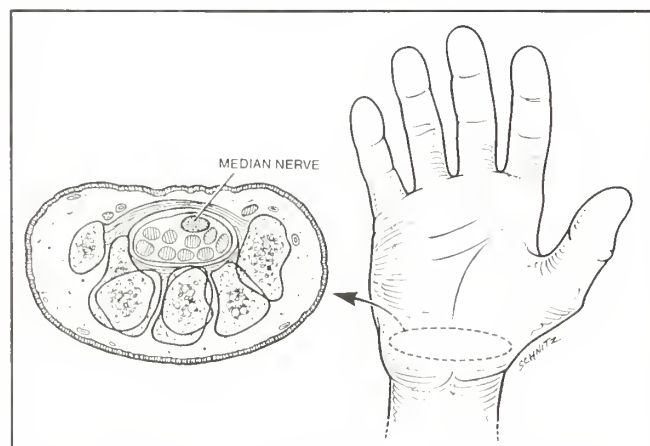


Figure 1: Cross-sectional anatomy of the carpal tunnel. The passageway exists in the wrist and proximal palm and is bounded by the carpal bones and the transverse carpal ligament.

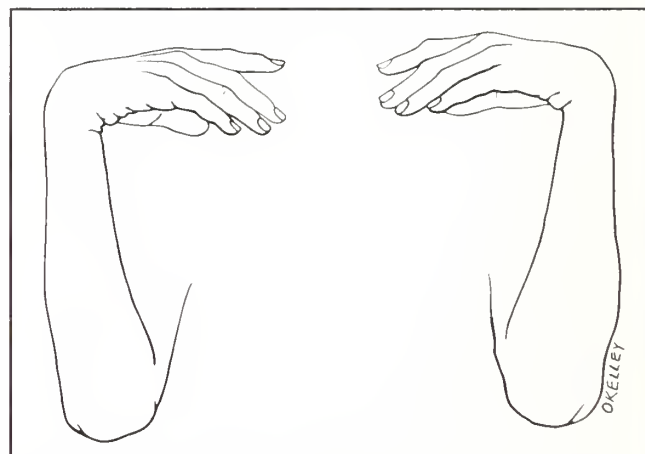


Figure 2: Phalen's wrist flexion test for carpal tunnel syndrome. The wrists are placed in unforced complete flexion for as long as 60 seconds. Paresthesias or dysesthesias in the median nerve distribution constitute a positive test.

women than in men, recent reports indicate that it may be more prevalent in men than had been previously realized. The incidence of bilaterality may be as high as 80%. The syndrome occurs with alarming frequency in certain occupations, such as keyboard operators or meat packers in whom the so-called "cumulative trauma disorders" are commonplace.

Clinical characteristics

Symptoms characteristic of carpal tunnel syndrome include numbness or tingling in the distribution of the median nerve, that is, the thumb, index, middle and radial half of the ring finger. Many patients will note that the numbness began in the middle finger or in the middle and index fingers before spreading to adjacent digits. Nocturnal paresthesias or hypesthesias frequently awaken affected patients, who attempt to arrest the discomfort by shaking their hands or immersing them in warm water. The symptoms also may be provoked by vigorous or repetitious use of the hands or by activities that involve prolonged positioning of the wrists in flexion or extension such as driving, writing or typing.

Many patients also complain of pain in the wrist or forearm, and discomfort in the upper arm or shoulder is not uncommon. Proximal migration of pain from the hand toward the elbow is frequently described. Weakness or clumsiness of the hand are late developing symptoms following long-standing carpal tunnel syndrome, and patients often will report a tendency to drop objects. True sensory loss or thenar muscle atrophy is realized by only a few patients with this condition although continuous numbness or

discomfort is often described with severe or chronic nerve compression.

Diagnostic features

The most important diagnostic test for carpal tunnel syndrome is the wrist flexion test first described by Phalen in 1951 (Figure 2). This maneuver consists of placing the wrist in unforced complete flexion for as long as 60 seconds. When positive, the test will produce paresthesias or dyesthesias in the median nerve distribution of the hand and closely simulate the patient's symptoms. The test is thought to be positive in at least 80% of patients with the condition and usually can be considered to confirm the existence of median nerve embarrassment in the carpal canal.

Tinel's tapping test may also contribute useful diagnostic information and is elicited by gently tapping proximal to, directly over and distal to the palmar wrist crease. A positive response occurs when the patient reports tingling or "an electric shock" sensation into one or more of the fingers innervated by the median nerve. The test is thought to be positive in about 45% of patients with the condition. In the advanced stages of carpal tunnel syndrome, atrophy of the thenar muscle mass and/or demonstrable sensory loss will indicate the severity of the nerve compression.

Although electrodiagnostic studies (electromyographic and nerve conduction velocity tests) have been widely used to investigate the status of the median nerve at the carpal tunnel, these tests are not required for all patients suspected of having the condition. Even when performed by the most experienced examin-

ers, these evaluations may have a false negative rate as high as 30%. The tests are expensive and somewhat painful for the patient and may not be necessary when the presenting symptoms are clear-cut and the provocative maneuvers are strongly positive. These tests generally should be used when the patients' symptoms or physical findings are confusing or when one wishes to differentiate carpal tunnel syndrome from ulnar nerve compression or from thoracic outlet syndrome or cervical radiculopathy.

Treatment

The conservative treatment of carpal tunnel syndrome consists of splinting the wrist, particularly at night, and the use of oral, non-steroidal anti-inflammatory medications. The injection of a corticosteroid directly into the carpal tunnel may be done occasionally for both diagnostic and therapeutic reasons. When the patient fails to respond to conservative treatment or has a demonstrable neurologic deficit, surgical decompression of the carpal tunnel should be considered. ▢

This is another in a series of monthly articles on hand conditions from The Indiana Hand Center in Indianapolis.

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Physicians' attitudes toward hospital ethics committees

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The explosion in medical science and technology during the last three decades, along with an increase in patient autonomy and concurrent decline in physician paternalism, has created an enormous number of unresolved ethical dilemmas. Ethical issues are arising in health care facilities at an astonishing rate. Some of these issues include the termination of life-sustaining procedures, the protection of the rights of the mentally incompetent or disabled, the establishment of policy for the allocation of scarce or expensive resources and the development of methods to ensure access for patients in need of life-saving transplants.

Occurring well in advance of firm medical norms and legal precedent, issues such as these place great demands on physicians and health care facilities to devise a means by which they may be resolved. One such method recently adopted by many hospitals and nursing homes has been the formation of an ethics committee. Ethics committees have been defined as "a group established by a hospital or health care institution formally charged with advising, consulting, discussing or otherwise being involved in ethical decisions and policies that arise in clinical care."¹

Although "medico-moral" committees existed before 1970 in some Catholic hospitals, most of today's institutional ethics committees made their appearance in

the mid-1970s following the much-publicized New Jersey Supreme Court decision concerning Karen Quinlan. The court called for consultation by an ethics committee to assist in determining her prognosis.²

Since then, the number of committees has increased steadily, especially after 1983 when the President's Commission emphasized their importance.³ The number of hospitals with ethics committees is estimated to have grown from less than 1% in 1981⁴ to more than 60% in 1990 (from information provided by G. P. Gramelspacher, M.D., published in Summer 1991, *Issues in Law and Medicine*). In 1987, the Maryland State Senate became the first state to pass legislation requiring all its hospitals to form Patient Care Advisory Committees, essentially ethics committees.⁵

As these committees have multiplied in number, they also have expanded in function. Although the committees were originally established primarily as prognosis committees and to con-

sider cases involving the termination of life-sustaining treatments, many experts suggest that ethics committees also should perform several other functions. These functions include: the development and implementation of hospital policy, the education of hospital employees and members of the community, retrospective and prospective case review and support of physicians and other health care employees.^{1,6-12} Although other groups are certain to benefit, these functions primarily serve two groups: patients and physicians.

Naturally, as ethics committees evolve, researchers are beginning to study their impact on both patients and their doctors.¹³⁻¹⁷ Youngner and colleagues have already addressed patients' knowledge and opinions about ethics committees,¹⁸ but no one has assessed the attitudes of physicians. While it is meaningful to characterize ethics committees regarding their number, function, membership and patients' attitudes, it is also prudent to understand physicians' attitudes. The success of ethics committees may rest on an understanding of physicians' viewpoints because, since their inception, there has existed an underlying sentiment that physicians are opposed to their establishment.

In 1973, Veatch set the stage for this sentiment by suggesting that physicians often "generalize their expertise" as practitioners to also include the ability to make sound ethical judgments.¹⁹ Youngner et al also asserted that some physicians will view ethics committees as "unwelcome and

Table 1

Function of ethics committee

Description	Response*
Case review/consultation	57%
Formulate hospital policy	18%
Act as doctor-patient liaison ..	12%
Education	5%
Physician support	4%
Educate public	3%

*<100% due to rounding

Table 2
Members of an ethics committee

Description	Response*
Physician	97%
Member of clergy	86%
Attorney	73%
Nurse	69%
Social worker	57%
Administrator	56%
Philosopher/ethicist	56%
Patient/community representative	51%

* > one response possible

destructive intrusions into the traditional doctor-patient relationship."¹⁸ Other authorities have made similar comments,^{8,20-22} one adding that a hospital that chooses to organize an ethics committee may be financially jeopardizing its position by offending many of the physicians who support the facility by referring patients.⁷

This article presents the results of a survey distributed to determine the attitudes of physicians towards hospital ethics committees.

Methods

In the winter of 1990, an 11-item questionnaire was distributed to 1,092 physicians at two private Indianapolis hospitals. Hospital A is an 1,120-bed facility that has had an ethics committee since 1984. The committee reviewed its first case the following year, and last year handled 12 requests. Hospital B, a smaller facility with

625 beds, established a committee from a pre-existing "moral issues" group in 1988 and discussed three cases in 1990.

The anonymous questionnaire was pre-tested, revised and retested before being distributed to the medical staff through intra-hospital mail by members of the Medical Education Department at each hospital. A brief introduction stating the survey's purpose was included with each form. There were no follow-up questionnaires after the original instrument was distributed.

Results

Of the 1,092 physicians to whom forms were sent, 618 acceptable responses were received for an overall rate of 57%. Nine additional questionnaires were received but not included in the evaluation due to errors in completing the form.

The response rate for each hospital differed, however, with Hospital A recording a 64% return, while the rate for Hospital B was 38%. This difference probably reflects the means by which physicians could return their completed forms. At Hospital A, completed surveys could be processed through intra-hospital mail, whereas forms at Hospital B were returned directly to the Department of Medical Education.

The first question in the survey aimed to determine whether physicians were aware of the existence of an ethics committee at their hospital. Eighty-two percent correctly identified that a committee existed, 5% replied their facility did not have one, and 13% did not know.

When asked what an ethics committee's primary function

should be, most (57%) said it should be case review or case consultation (Table 1). The next most popular answers were to formulate hospital policy (18%) and to act as a physician-patient liaison (12%). Other choices that could be selected included: to educate health care employees, to act in physician support and to educate the public, all of which received less than 5% each. The instructions accompanying this question allowed only a single choice; however, several respondents (31) wrote there should be more than one function, most of these writing "all of the above."

The third question asked who physicians thought should serve as members of an ethics committee (Table 2). Physicians overwhelmingly (97%) believed their own profession should be represented. The second most frequent response was a member of the clergy (86%), then an attorney (73%), and fourth, a nurse (69%). A social worker, an administrator, a philosopher/ethicist and a patient/community representative were choices selected less often.

When asked who should have access to an ethics committee, respondents most often chose the patient's physician, 94% of the time (Table 3). The next five groups were all selected in nearly equal frequency: a patient representative (69%), an administrator (66%), a member of the clergy (65%), the patient (64%), a physician other than the patient's (62%) and a nurse (58%). Only 48% believed hospital personnel other than those listed above should have access to a committee.

Nearly half (46%) of the subjects reported they have "personally had a case for which an ethics

committee might have been consulted." An equal number replied in the negative, and 8% did not know.

The next series of questions sought to address whether some physicians might perceive ethics committees as intrusive into their roles as health care providers. The data show that 82% "would utilize an ethics committee if ever confronted with an ethical dilemma." Only 4% would not, and 13% did not know. Further, of the 618 respondents, 537 (87%) said that ethics committees are needed in hospitals. One doctor replied that where "ethical dilemmas are not recognized or are poorly understood, (an ethics committee) would provide a tool to bring us all to a similar standard." Approximately 4% replied they were not needed, with one physician stating "they would not be time or cost effective." The remainder (9%) did not know.

Finally, when asked directly if an ethics committee was intrusive into their practice, 79% answered they were not, while 8% said yes and 13% did not know. Surprisingly, of those who thought an ethics committee was intrusive (48 respondents), nearly three-quarters (35) still said they were necessary in the hospital setting ($p < 0.05$). Whether in the past a physician had personally confronted an ethical dilemma was not related to his feeling that an ethics committee might be intrusive.

One other question pertained to a physician's willingness to serve as a volunteer on an ethics committee. Fifty-eight percent said they would, 23% replied they would not volunteer, and 19% did not know.

Statistically, neither a

respondent's age nor hospital affected whether a physician had ever had a case, would use an ethics committee if confronted with an ethical dilemma, felt ethics committees were needed or felt they were intrusive. There was no statistical difference between hospitals for whether a physician knew an ethics committee existed, nor did it significantly alter the choice for the primary function of a committee.

Discussion

As ethics committees become more prevalent in health care facilities in the United States, this study suggests that many physicians are well aware of their existence, with 82% of subjects correctly identifying their Indianapolis hospital as having a committee. Both facilities in this survey publicized the presence of a functioning committee in employee newsletters, but the impact of recent national headlines cannot be underestimated in their ability to increase the awareness of physicians toward ethical issues.

The functions of ethics committees have long been the topic of debate, virtually since their beginning. Many experts agree that ethics committees have three basic functions: case review, policy development and education. However, it is of great importance, as put forth by Ross, to be able to detail the goals of ethics committees, so that they may be used efficiently.²³

This study illustrates that while case review and the formation of hospital policy are held in high regard by physicians (their top two selections), less than 5% of respondents felt that an ethics committee's chief function should

Table 3
**Access to an
ethics committee**

Description	Response*
Patient's physician	94%
Family representative	69%
Administrator	66%
Member of clergy	65%
The patient	64%
Other physician	62%
Nurse	58%
Other hospital personnel	48%

* > one response possible

be education. Surprisingly, the third most common choice was that ethics committees should primarily act as a liaison to improve communication between the physician and the patient, a function alluded to more than a decade ago.⁶

While physicians and Youngner's patient population both agree that case review and consultation should be a committee's foremost objective,¹³ at least four commentators have implied that education should be the first priority, especially in the development of an ethics committee.^{7,10,11,20} The implication is that without the education of at least its own members, an ethics committee would not be prepared to tackle the complex cases brought before it for consultation. As Gibson and Kushner wrote, the development of ethics committees usually begins with the education of its own members, then of the institution and finally of the community at large.

The next role, then, would be to begin to formulate hospital policy, and only after these functions are served would a committee progress to take on case review requests. Therefore, while supporting the views of physicians and patients regarding ethics committee functions, it might be wise to also stress the importance of education as a foundation for these other goals.

The most important finding in this survey is that physicians are not opposed to the establishment of ethics committees. The data show that nearly nine of 10 physicians believe ethics committees are needed in hospitals. Further, 79% do not believe committees would interfere with their practice, and at least four of five would use an ethics committee if faced with a difficult ethical issue. These figures show ethics committees are not viewed as unwelcome by most physicians. Almost half of the subjects claimed to have had an enigmatic case for which an ethics committee might have been employed; this is evidence that at least the availability of a committee would be of value to those who wished to use them.

Conclusion

As medicine enters the next decade, it finds itself caught in an era of increasingly complicated ethical concerns that are beginning to demand immediate attention. Many hospitals have formed

ethics committees to meet this demand. As their numbers have increased, they have been the subject of much debate as to their necessity, development and role. Most of the physicians responding to this survey assert their receptiveness to ethics committees and many appear willing to use them. The opinions of physicians, who are among primary beneficiaries, are important with regard to a committee's capacity to serve them, and, subsequently, to serve patients.

In addition to the issues discussed in this paper, several other areas need to be addressed, many of which arise from the results of this study. For example, since it appears that most physicians are willing to accept and employ ethics committees, an obvious question would be to inquire just how often they do so. Together, the two hospitals reviewed only 15 cases last year, a low number in light of the data above that suggest a far greater number of cases exist. Further data must be collected to resolve this disparity.

Many opinions have been offered regarding ethics committee functions, membership and access, so it would be interesting to discover how well these beliefs correlate with current practice. Other concerns include: the legal liability of ethics committees and their members, the ability of a committee to maintain confidentiality during case reviews and the

financial resources of a hospital to initiate, develop and maintain a functioning committee. A study soliciting the opinions of other groups, such as nurses, administrators, attorneys and members of the clergy, would also add to our knowledge.

I suspect that, in their infancy, ethics committees have done well to begin to stir the waters of ethical issues that for many years have been calm; at the same time, however, we must continue to evaluate their performance and direction so that they will be fully appreciated as they progress toward the goals we set for them. □

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Doctors, families and difficult decisions: The implications of the Lawrance case

James J. Nocon, M.D., J.D.
Indianapolis

The Indiana Supreme Court has held that the parents of a patient in a persistent vegetative state may authorize the withdrawal of artificially provided nutrition and hydration from their never-competent daughter.¹ "The law of our state permits families to decide, **in consultation with their physicians**, that tube feeding of a loved one in a persistent vegetative state should be ended. Our law permits them to make these decisions **without coming to court**. When there is **not unanimity** amongst those with tangible professional or personal interest in the patient, the courts are available to resolve the dispute if need be."¹

The justices of the Indiana Supreme Court are to be praised for their thoughtful and reasoned approach to a difficult issue. Most importantly, they gave weight to the testimony of physicians especially skilled in medical ethics, they cited the ethical guidelines regarding nutrition and hydration noted by the Indiana State Medical Association, and they repeatedly emphasized the role of the physician in their decision. This is in stark contrast to the U.S. Supreme Court decision in *Cruzan v. Director, Missouri Dept. of Health*.² In this similar case, the justices paid virtually no attention to the role of physician or the physician-patient relationship in such issues.

The *Cruzan* case held that the family or a surrogate did not have a constitutional right in **Missouri**

to substitute judgment for the patient without clear and convincing evidence that the patient desired not to have life prolonged.³ However, the decision does not establish this standard nationally. Justice Sandra Day O'Connor's concurrence indicates that this area of the law was best left to the "laboratory of the states."⁴ This article will address the three major issues decided in the *Lawrance* case, the role of the physician in these issues and some of the questions that remain in Indiana's "laboratory."

The first issue the Indiana Justices studied was the Model Health Care Consent Act (HCCA) to determine whether this law applied to decisions to withdraw artificially provided nutrition and hydration.⁵ The HCCA or "Substituted Judgment Law" applies to "health care" decisions, which are defined as any care, treatment, service or procedure to maintain, diagnose or treat an individual's physical or mental condition. It also includes admission to a health care facility.⁶

In its analysis, the court noted that Indiana common law, its constitution and its statutes "reflect a commitment to patient self-determination."⁷ "The patient's right of self-determination is the **sine qua non** of the physician's duty to obtain informed consent."⁸ The court concluded that "artificial nutrition and hydration is treatment that a competent patient can accept or refuse, that the family of an incompetent patient can accept or refuse it on behalf of the patient, and that the procedures of the HCCA apply to such decisions."⁹ The net effect of the

Lawrance decision is to include artificial nutrition and hydration decisions in the definition of "health care" under the HCCA.

The second issue involved whether justice proceedings are required to allow families to put their decisions into action if the HCCA does apply to decisions about nutrition and hydration. The Supreme Court noted that the HCCA was written for a society in which health care decisions are routinely made by families on advice of their physicians. The court concluded that the legislature designed the HCCA to operate without court intervention in instances where none of the interested participants disagree.¹⁰

The Supreme Court noted that Indiana Code § 16-8-12-4 establishes the **conditions and the desired priority** for substituted judgment as follows: 1) the patient must be incapable of consenting for her own health care; 2) the patient has not appointed a health care representative as allowed under Indiana Code § 16-8-12-6; 3) the patient has no guardian or health care representative as allowed under Indiana Code § 16-8-12-7; and 4) the patient has not disqualified her parents as decisionmakers under Indiana Code § 16-8-12-8. When these conditions are met, then the "spouse, parent, adult child or adult sibling" may make the health care decisions allowed by the HCCA.¹¹

Families and physicians do not have unbridled discretion in treatment decisions. Nor are the justices so naive as to think that doctors do not have influence and control over what facts are pre-

sented to the family and the ultimate decision itself. Thus, the court expects the primary defense against abuse to be the "ethical guidelines of the medical profession" and, secondarily, ethics committees.¹² As long as the good faith requirement of the HCCA is met and the doctor and family unanimously agree to the course of action, complete immunity is given for the physician's role in such decisions.¹³

The third issue before the court was whether the Marion Superior Court erred when it appointed a temporary limited guardian for Ms. Lawrance. The Supreme Court found that the lower court's decision was clearly erroneous. This is because the critical element for appointing such a guardian, that no other person has authority to act in the circumstances, could not be fulfilled in this case because the HCCA allows other people, such as the family, to act. Since there were family members available to make the decision, there was no basis to appoint a temporary guardian.

Although the HCCA allows for a challenge to health care decisions, it must come from a "health care provider or any interested individual."¹⁴ The Supreme Court emphatically stated that neither of the temporary guardians were health care providers nor were they "interested" in Ms. Lawrance in anything other than a generic sense. "If the General Assembly intended to permit strangers to litigate family decisions, it could have said a challenge may be mounted by 'any individual.' The use of the word 'interested' suggests that strangers need not apply."¹⁵

The physician has a well de-

fined role in this process. First, the doctor must ascertain that the conditions for substituted judgment are met. Simply put, patients make their own treatment decisions with the advice of their physicians; family members, and sometimes other people, participate when the patient cannot.¹⁶ Second, the doctor and the family must be able to demonstrate unanimity in agreement. Third, the doctor must take into consideration other "interested" people who may have standing to challenge the decision. Most importantly, physicians should never lose sight of the fact that they are the patient's advocate.

The problems for the doctor, in situations such as the *Lawrance* case, fall into three general categories. First, there may be no identifiable family. This is a situation in which a temporary guardian may be appointed and other "interested" people, but not strangers, may eventually make treatment decisions. In this situation, a hospital administrator or a hospital ethics committee may fulfill the definition of an "interested" party. It would be prudent to demonstrate unanimity amongst the health care providers and these "interested" people.

Second, the doctor will certainly be caught in the crossfire when there is no unanimity within the family. This may occur when one member wants "everything possible to be done" while other members have accepted the reality of the situation. Although ethics committees are loath to mediate such disputes, their input may be helpful for the physician, especially to convince a family member that a situation is hopeless. The clergy is especially helpful in such situations. Nonethe-

less, if unanimity cannot be established, the doctor's role is to maintain advocacy for the patient and not take sides. When there is not unanimity, the courts are available to resolve the dispute, if need be.¹⁷

Third, "interested" people may have a substantial influence on the family. For example, due to their personal perspectives on life-prolonging care, hospital or nursing home personnel may be at odds with the family. Under the HCCA, the health care provider may challenge the treatment decisions or lack thereof. In fact, as the patient's advocate, the doctor has an affirmative duty to follow the standard of care and prevent injustice.¹⁸ In this regard, the language in the *Lawrance* case denotes respect for the decisions of ethics committees in such situations.¹⁹

Other issues in substituted judgment cases may cause problems for the physician. One is that the interests of family members are interconnected. For example, the cost of medical care for a terminally ill patient or one in a persistent vegetative state may exhaust the resources of the surviving spouse or children. Should these financial interests be an issue for the doctor, particularly if the spouse who died might have chosen other medical treatments to avoid such an outcome?²⁰ Furthermore, does the financial interests of the hospital, nursing home or insurer make these parties sufficiently "interested" to challenge the family's decision?

Another issue focuses on the definition of "family." Are people other than a spouse, parent, adult child or adult sibling, who provide caring and nurturing that is not provided by the traditional

family, less capable or knowledgeable about the patient? It should be emphasized that the underlying principle behind substituted judgment is for the surrogates to try to determine what the patient would have wanted if he or she were competent to choose. In reality, the family is going to look to the doctor for advice; due to the physician-patient relationship, the doctor may be the only one who has any insight into these issues.²¹

No Supreme Court decision can be expected to resolve all of the issues that arise in the withdrawal of life support or similar cases. Critics of the *Lawrance* decision consistently argue that the state has a crucial function to protect adequately the lives of its citizens, ostensibly because the right to live is a precondition to all other rights.²¹ The problem with this position is it gives the state the raw power to follow an impersonal technological imperative to treat merely because it is possible to do so.²² The Indiana

Supreme Court wisely rejected this alternative and has appropriately placed the burden for these decisions exactly where it should remain: out of the courtroom and between physicians, patients and their families. □

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Hepatitis C

Leo J. McCarthy, M.D.
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Constance Danielson, M.D., Ph.D.
Alessandra Thelia, M.D.

When the hepatitis C virus (HCV) was identified and an assay was developed to detect its antibody, there was considerable optimism that most, if not all, cases of non-A, non-B (NANB) hepatitis could be identified among blood donors and recipients. The hepatitis C antibody (HCV Ab) test was implemented in the United States in May 1990. What have we learned?

What does a positive HCV test mean?

The sensitivity and specificity of the HCV Ab test remain concerns. Chiron Corporation's current screening assay's sensitivity is about 85% but may be improved to nearly 95% when a new assay is licensed. The American Red Cross tested nearly 25,000 samples (personal communication) and found initially positive samples were repeatedly positive in about 70% of samples. Of the repeatedly positive samples, only 37% tested positive with recombinant immuno blot assay (RIBA), 47% tested negative, and 16% gave indeterminate results (neither positive nor negative).

The Central Indiana Regional Blood Center and Indiana University Medical Center in Indianapolis studied 54 HCV samples found to be antibody positive also using Ortho reagents. Seventy-two percent of the samples were repeatedly positive. The repeatedly positive samples were then tested using supplemental tests (a neutralization and peptide/EIA tests). Fifty-six percent remained positive, 39% were negative, and 5%

were indeterminate. Thus, our results show similar trends. Significant limitations of HCV testing still exist. Currently, there is no confirmatory test. A comprehensive assessment of anti-HCV testing will be published in the *Morbidity and Mortality Weekly Report*.

How is HCV transmitted?

The Centers for Disease Control (CDC) estimates approximately 170,000 cases of NANB (non-A, non-B) hepatitis occur yearly. About 70% of these will test positive for HCV antibody within a year. Only 10% of all NANB cases have been associated with blood transfusions or intravenous drug abuse. However, 80% to 85% of post-transfusion cases have been anti-HCV positive. Household and sexual transmission routes are currently controversial. However, a CDC study found that patients with anti-HCV have 10-fold higher rates of multiple sexual partners in the past six months compared to those without antibody. Conversely, another report showed that among gay men (a reliable index of sexual transmissibility) there is only a 15% rate of HCV infection, higher than the control group but lower than rates of hepatitis B and HIV infections. The female partners of HCV-positive male intravenous drug users have only 20% HCV positivity rates.

Currently, there is no evidence regarding mother to child transmission. Since the HCV is similar to flaviviruses (Arbovirus family), insect transmission may be possible.

The CDC provides interpretation and counseling regarding HCV transmission and epidemiology. For more information, call the CDC at (404) 332-4555. The January issue of *Vox Sanguinis*

contains an in-depth discussion of this subject.

Should HCV look-back be done?

In September 1990, the American Association of Blood Banks concluded that a "targeted" look-back of transfusion recipients who received blood from donors now anti-HCV positive would not be useful. Their conclusion was based on the experience of HIV look-back and HCV pilot programs conducted at the Cincinnati Hoxworth Blood Center. Hoxworth notified all prior transfusion recipients at risk for HCV infection but only 1% responded. Consequently, education programs have been recommended.

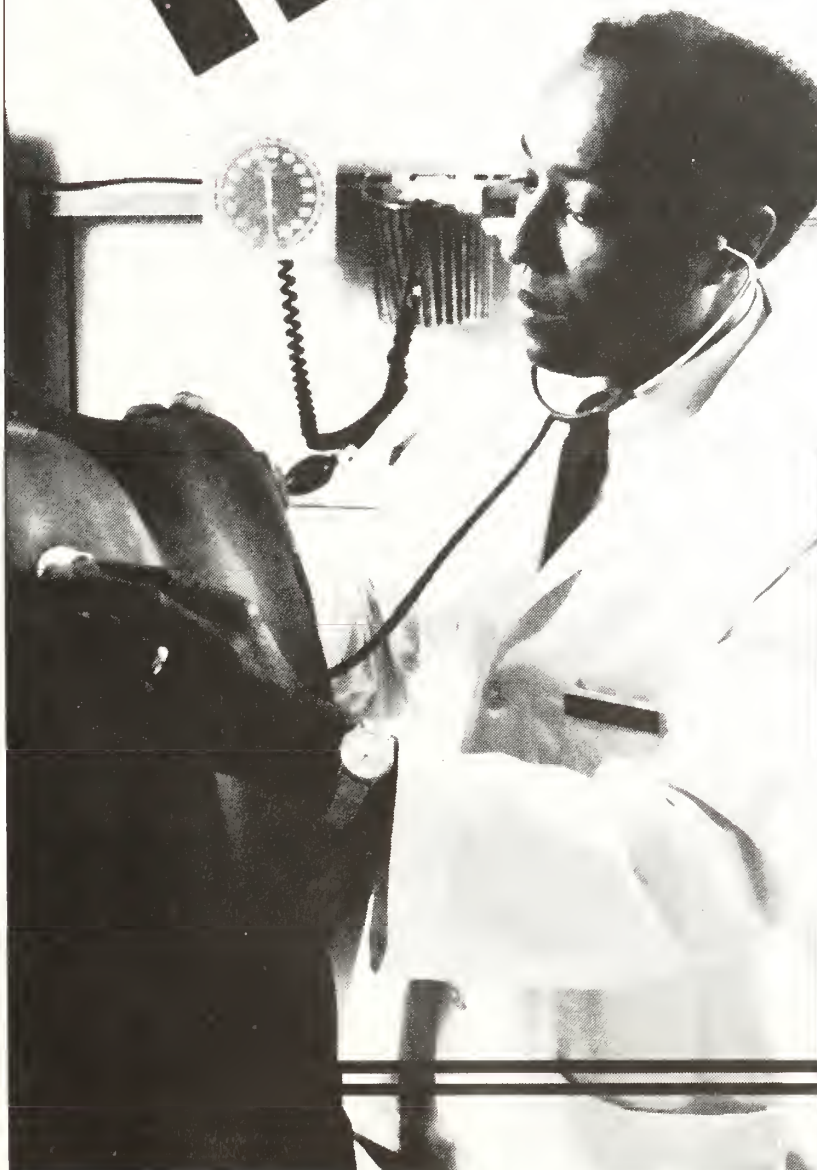
Is the HCV patient treatable?

In August 1990, the U.S. Food and Drug Administration approved alpha interferon for treating patients with HCV infections. About 10% of treated patients have entered remission. Patients with anti-HCV should be referred to a physician. Information on alpha interferon, including physicians knowledgeable in its usage, may be obtained by calling 1-800-446-8766. □

Dr. McCarthy is director of transfusion medicine at Indiana University Hospital in Indianapolis. Dr. Hsueh was medical director, and Dr. Thelia is acting medical director at the Central Indiana Regional Blood Center in Indianapolis. Dr. Danielson is the director of transfusion medicine at Wishard Memorial Hospital in Indianapolis.

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■ letter to the editor

Editor's note: The following letter was sent to C. Dyke Egnatz, M.D., in response to a letter Dr. Egnatz, the new ISMA president, sent to all ISMA members. The letter listed the benefits of ISMA membership and urged physicians to continue their support of organized medicine.

Thank you for your recent letter to ISMA members regarding the current and future issues facing us. I greatly appreciate the efforts of ISMA on behalf of Indiana's physicians.

I recently moved to Anderson from Kalamazoo, Mich. There were multiple sources of my dissatisfaction with the situation in Kalamazoo, but some of the issues addressed in your letter led to an adverse impact on my ability to practice in Michigan. In Michigan, we were receiving 20 to 35 cents on each dollar that was billed to Medicare, and this reimbursement was generally delayed for many months.

An indirect consequence of this adverse economic impact led to a reduced ability on our part to recruit other hematologists/oncologists to our practice. Because of this, my work day was generally 14 to 16 hours, thereby reducing the time I could use to keep current on the medical literature or spend with my family. At least in Michigan, Medicare also habitually developed new rules restricting our reimbursement without notifying the physicians involved. Most of the time, these restrictions had little or nothing to do with medical care but ap-

peared to be designed to provide an excuse for non-payment or partial payment. This probably had something to do with the hospitals' inclination to look upon oncologists in Kalamazoo with disfavor. I received several indirect comments that led me to believe that the hospitals considered us a financial drain on the institutions. This may, at least partially, explain why we had inadequate facilities, equipment and staffing to properly care for oncology patients. Eventually, these problems frustrated me enough to move to Indiana.

When I discuss conditions in Michigan with physicians in Anderson, they have been surprised. My impression is that Medicare reimbursement is at least somewhat better here in Indiana than it was in Michigan.

Another problem cited in your letter is that the present tort system could be adversely impacted by a change in the Indiana Medical Malpractice Act. Although my premiums for professional liability coverage in Michigan were not particularly expensive, I will pay less than one-third of what I paid in Michigan for coverage in Indiana.

As you know, there are essentially no incentives dissuading an attorney from entering litigation with a physician in Michigan. The plaintiff and attorney know there will be some financial reward for their endeavors against a doctor in Michigan, in some cases unrelated to mismanagement or negligence on the physician's part. This leads to costly defensive medicine and cost shifting by

hospitals, resulting in escalating medical care costs.

Indiana should be commended for developing a system that effectively balances the rights and protection of patients, hospitals and doctors. Because of Medicare reimbursement problems, a high litigation rate and the large awards granted by courts to the plaintiffs in Michigan, patient care is adversely affected because of dwindling financial resources and the practice of increased test ordering for protective purposes.

It concerns me that Indiana is still at risk of taking a path similar to that of Michigan, which already has proven disastrous. I fear that the citizens of Indiana may not fully appreciate the benefits of differences in their health care systems compared to those in Michigan. I am now practicing in Indiana largely because of those differences. If the Medicare, malpractice and other factors deteriorate in Indiana, I might have to consider another move to a different state. I hope the policy makers in the state government are aware that there may be other young physicians who have similar opinions.

Thank you again for your continuing work on the behalf of not only doctors in Indiana but the citizens at large. I will continue my membership with ISMA.
— **Brian L. Eddy, M.D., Anderson.** □

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The chemically dependent person is mentally, physically, spiritually and financially bankrupt at the time of diagnosis. Cognitive function is temporarily or permanently impaired. Psychosomatic and/or pathological processes, ranging from functional bowel syndrome to cirrhosis, are usually multiple in the same person. Overwhelming feelings of shame and guilt make the person conclude he or she is "unworthy" of forgiveness and, therefore, permanently rejected by a spiritual being. Home loan foreclosure, employment or business jeopardy, delinquent taxes and credit cards with outstanding maximum balances exist in varying combinations.

This "bankrupt" state is complicated by the final, usually devastating, event that leads to the person's identification as chemically dependent. Arrest, divorce, hospitalization, serious personal injury and/or loss of gainful employment are examples of these events. Stress generated by these events "overloads" an already dysfunctional emotional system. Depression with suicidal thoughts, gestures or attempts is common.

The pathological biophysiology associated with chemical dependency accentuates the depression and adversely affects attempts at therapy. Spontaneous mood swings varying from elation to deep depression result. Precipitating factors are non-existent and, predictably, indefinable. Aware of these moods and unable to explain them, the person fears for his or her sanity. Reactions to these fears are extreme and vary from rage with violence to re-

morse with isolation. Finally, the patient is overcome by absolute helplessness and hopelessness.

Physical pain associated with withdrawal from alcohol and drugs adds to the patient's emotional distress. Diaphoresis, hypertension, headache, indigestion, diarrhea, constipation, confusion and trembling are experienced. Insomnia, nightmares and agitation enhance the physical discomfort and emotional concern associated with these symptoms.

The person's impaired coping mechanisms perceive the use of chemicals as the only option for relief. Environmental conditioning coupled with pathological biochemical and physiological alterations combine to create a powerful and overwhelming mental obsession and physical compulsion to use drugs, including alcohol. The person denies the disease to the point of resisting all recognized therapies.

During this period, the person will do whatever is necessary to procure and use drugs, including alcohol. If hospitalized, the patient behaves in a manner intended to exhibit the justification for prescription of mood- or mind-altering drugs. If this "drug seeking" behavior is unsuccessful, the patient resorts to rationalizing justification for leaving the hospital. Examples of rationalizations include "My dog is not being properly cared for," "I need to pick up my new car," "My wife (husband) cannot get along without me," and "I can't afford to miss work."

Incarceration, divorce, unemployment, rapid physical decompensation and death are possible consequences of leaving the hospital against medical advice. However, the "rationalizations" are accepted as truth by the patient, and he or she leaves against medi-

cal advice. The patient's pathological willingness to sacrifice personal freedom and accept impending death in pursuit of drugs, including alcohol, is an expression of the total control and infinite power associated with the mental obsession and physical compulsion of chemical dependency.

Abstinence, the first step in a program of recovery, requires neutralization of this mental obsession and physical compulsion. Thirty or 60 days of continuous abstinence are not uncommon. However, these are usually followed by indeterminate periods of active addiction, disease progression and accelerated self destruction. Consequently, "relapse," defined as return to active addiction after a period of abstinence, is recognized as a common symptom of chemical dependency.

Realistically, relapse cannot occur unless a period of recovery has existed. Recovery cannot exist unless the patient is practicing a program of recovery and sufficient time has elapsed for reversal of the pathological biochemical and physiological changes to occur. The minimum time necessary for significant reversal is one year. Completion of the process requires at least two years.

Clinically, a person who resumes the use of drugs, including alcohol, in the first or second year of continuous abstinence is not in relapse but is continuing an addictive state. These people are referred to as "dry drunks," implying they are abstinent but not progressing in recovery. The dry drunk hasn't sufficient Power to neutralize the mental obsession and physical compulsion of chemical dependency. Therefore, there is always a return to the use of drugs, including alcohol, regardless of the consequences.

Identifying the source of this

■ the wounded healer

Power and devising a method to facilitate patient acceptance has challenged physicians, therapists, ministers and others for years. It now is generally accepted that this Power is available from a combination of surrender to and participation in a 12-Step Program of recovery. The number of people who maintain recovery (abstinence) without participation in a 12-Step Program is minimal.

Most professionally accredited addictions therapy programs are 12-Step oriented. Individual and group psychotherapy supplement the 12-Step concept.

When a patient enters therapy, he is, by definition, mentally and physically incapable of recovery. Pathological aberrations in neurotransmitters and receptors preclude "normal" emotional responses and rational thought processes. Long-standing environmental conditioning has re-enforced the use of drugs, including alcohol, as the answer to all problems – real or imagined. Minimal support is available from family, friends and employers. Legal, financial and emotional stressors are overwhelming.

Incapable of recovery himself, the patient must find a Power outside himself with sufficient strength to neutralize an obsession. This Power must be omnipotent, perpetual and accessible. Reliance on the strength and willingness of this Power to relieve the obsession and compulsion to use drugs, including alcohol, releases the patient from a mental and physical bondage. Relieved of this bondage, the patient can direct his energies toward self improvement, and sufficient abstinence time can elapse to allow healing of underlying pathological changes.

Suggesting finding a Power outside oneself to facilitate recovery

is not a recent or unsubstantiated therapeutic concept. Dr. William D. Silkworth, a psychiatrist practicing in New York, N.Y., in the early 1900s and specializing in the diagnosis and treatment of alcoholics, wrote the following: "We believe, and so suggested a few years ago, that the action of alcohol on these chronic alcoholics is a manifestation of an allergy; that the phenomenon of craving is limited to this class and never occurs in the average temperate drinker. These allergic types can never safely use alcohol in any form at all."

Dr. Silkworth continued, "Faced with this problem, if a doctor is honest with himself, he must sometimes feel his own inadequacy. Although he gives all that is in him, it often is not enough. One feels that something more than human power is needed to produce the essential psychic change."

Dr. Silkworth met Bill W., an end-stage alcoholic who had been diagnosed as "chronic and hopeless" by himself and a leading Swedish specialist in alcoholism. Dr. Silkworth hospitalized Bill in preparation for commitment to a mental institution. During this hospitalization Bill W. claimed a spiritual experience, and after this spiritual experience Dr. Silkworth observed evidence of a total "psychic change."

Bill W. left the hospital grateful for his sobriety and the Power that had made it possible. Six months later during a business trip to Akron, Ohio, he became depressed and almost drank. Instead of going to the bar in his hotel, he called a friend who introduced him to a practicing alcoholic whom the friend had tried to help for some time. The alcoholic was Dr. Bob, a proctologist. Bill W. and Dr. Bob became

close friends and co-founded Alcoholics Anonymous. Bill W. wrote the book *Alcoholics Anonymous*, including the "12 Steps of Alcoholics Anonymous." He lived for more than 40 years after his discharge from the hospital and never took another drink of alcohol. Dr. Bob had one brief relapse six months into sobriety and lived the rest of his life without taking a drink of alcohol.

The first three steps of Alcoholics Anonymous are:

1. We admitted we were powerless over alcohol and our lives had become unmanageable.
2. Came to believe that a Power greater than ourselves could restore us to sanity.
3. Made a decision to turn our will and our lives over to the care of God as we understood Him.

From my personal experience in recovery, I believe that a person who does not completely surrender his or her addiction to a Power greater than himself or herself through the above steps has very little if any chance of recovery. My observations during the treatment of approximately 2,000 addicts and alcoholics further confirm the above conviction. Progression through the other steps, regular meeting attendance in AA, continued personal growth and, if necessary, professional counseling are also necessary if abstinence, recovery and serenity are to be maintained.

However, without a Power greater than ourselves to get us through those early stages of recovery, we alcoholics would remain helpless and hopeless. □

The author is medical consultant to the ISMA Physician Assistance program.

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■ auxiliary report

Kay Enderle ISMA-Auxiliary President

This year, ISMA-Auxiliary President Kay Enderle chose breast health awareness as the focus for the auxiliary's health project. A seminar on breast health was held in conjunction

with the ISMA annual convention. In addition, Marilyn Krueger, health projects chairman, will send pledge cards to all ISMA-A members, allowing them to sign up to take a friend to have a mammogram when they have their annual exams.

We hope this program will encourage more people to have

mammograms. A return card, stating when and where the mammogram was performed, will be returned to Marilyn. We urge all members to participate in this project and encourage them to develop projects in their communities to promote breast self-examination and mammography. □



Pictured at the American Medical Association Auxiliary convention in Chicago are members of the Indiana delegation: seated, from left, Pat Montgomery, Darlene Haddawi, Kay Enderle, Trudy Urgena and Lura Stone, and, standing, from left, Rod Ashley, Rosanna Iler, Donna Dersch, Ann Wrenn, Sue Schneider and Patrick Walker.

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- an information exchange on PRO Scope of Work and Uniform Clinical Data Sets: What You Should Know.

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Carlos M. Antonio, M.D.

Dr. Antonio, 52, a Highland family practitioner, died Sept. 18.

He graduated from the College of Medicine, Manila Central University, in the Philippines in 1964.

Dr. Antonio practiced medicine in East Chicago for the past 12 years and was a member of the Lake County Medical Society.

Frances T. Brown, M.D.

Dr. Brown, 94, founder of the Premature Clinic at the Indianapolis City Hospital, now Wishard Hospital, died Oct. 1 at St. Vincent Hospital in Indianapolis.

She graduated from the Indiana University School of Medicine in 1931 and was a member of the first group of people to organize Winona Hospital. She delivered more than 4,000 babies and was 90 years old when she delivered her last. She established a breast milk feeding bank in which donors provided milk for needy infants and also designed and constructed one of the state's first newborn incubators.

Dr. Brown retired in 1985 after working her entire career as a general practitioner out of an office at 21st and Talbott streets in Indianapolis.

Alan R. Chambers, M.D.

Dr. Chambers, 84, formerly of Fort Wayne, died Aug. 25 in Veterans Affairs Medical Center in Fort Wayne. He was a resident of Bay St. Louis, Miss.

He graduated from Harvard Medical School in 1932 and was a veteran of World War II. He was instrumental in establishing the Fort Wayne and Allen County cancer societies, blood bank of the American Red Cross and the Maternal Health League.

Dr. Chambers was a member of the Fort Wayne Academy of Medicine, Golden Legion of Phi Delta Theta and Golden 50 years of the Academy of Physicians.

James M. Himler, M.D.

Dr. Himler, 90, a retired Indianapolis internist, died Sept. 14 at St. Vincent Hospital in Indianapolis.

He graduated from the Indiana University School of Medicine in 1926 and was a member of the Audubon Society.

Dr. Himler had offices at Walcott and Washington streets and in the Hume Mansur Building. He retired in 1965.

Charles A. Reid, M.D.

Dr. Reid, 84, a retired Indianapolis general practitioner, died Oct. 7.

He was a 1932 graduate of the Indiana University School of Medicine and served in the Army Medical Corps during World War II.

Dr. Reid was a general practitioner for 50 years and retired in 1983. He had been on the staffs of Community, University Heights and St. Francis hospitals.

George V. Teter, M.D.

Dr. Teter, 69, director of student health services at Indiana State University, died Sept. 13 at his home in Carbon.

He graduated from the Indiana University School of Medicine in 1946 and was a Navy veteran of the Korean War.

Dr. Teeter practiced pediatrics in Indianapolis for 34 years and founded the Northside Pediatric Clinic. He served on the Washington Township school board and co-founded the medical clinic at Wheeler Mission in Indianapolis. He served on the medical staffs of St. Vincent, Methodist, Riley and Community hospitals in Indianapolis and was clinical assistant professor of pediatrics at the Indiana University Medical Center. □

■ news briefs

South Bend center named Daily Point of Light

St. Joseph's Chapin Street Health Center in South Bend was honored as the 584th Daily Point of Light by President George Bush. The center provides health care services for medically underserved city residents.

Through an organized volunteer network, the center has more than 50 physicians who volunteer their time and services each month. Another group of approximately 100 volunteer physicians accepts referrals from the center. The center also provides cooperative food centers, home visitations for the elderly and disabled and health screenings at soup kitchens and fills prescriptions to patients at little or no cost.

Points of Light recognition is given to those engaged in solving social problems through voluntary service in their communities.

IU study finds gene mutation in family with Alzheimer's

Researchers at the Indiana University Medical Center and Richard L. Roudebush V.A. Medical Center in Indianapolis have identified a gene mutation in three successive generations of an Indiana family with Alzheimer's disease. A mutation in the amyloid precursor protein (APP) is present in members of the family.

By sequencing DNA from the Indiana family in the laboratory of Merrill Benson, M.D., professor of medicine and medical and molecular genetics, the researchers discovered a mutation in a part of the APP gene near the coding region of the amyloid beta protein. Other researchers were Jim Murrell, a Ph.D. candidate; Martin Farlow, M.D., associate professor of neurology; and Bernardino

Ghetti, M.D., professor of pathology, psychiatry and medical and molecular genetics.

Their work signals the first time that a mutation in the APP gene has been found in more than one generation of a family in association with Alzheimer's disease.

Two biochemists to receive Beering Award from IU

Biochemists Edwin G. Krebs, M.D., and Edmond Fischer, D.Sc., have received the 1991 Steven C. Beering Award from the Indiana University School of Medicine. They accepted the award Oct. 30 after their public lecture at the medical center.

Drs. Krebs and Fischer are faculty members in the School of Medicine at the University of Washington in Seattle and have worked together for 40 years. Their discovery of an enzyme called phosphorylase kinase eventually allowed researchers to uncover the cause of the metabolic disorder, McCardle syndrome, and to make strides in research on diabetes and other endocrine disorders of carbohydrate metabolism.

The researchers also identified another enzyme, the cyclic AMP-dependent protein kinase, which allowed them to show that cyclic AMP worked by stimulating formation of active kinase.

Healthier hearts goal of school project

The Indianapolis Regional Heart Center and St. Francis Hospital Center in Beech Grove have launched a five-year research project involving 740 middle school students.

The "Heart Stars" program at Greenwood Middle School is designed to determine if providing resources and educational pro-

grams in a middle school setting will reduce elevated primary risk factors for cardiovascular disease. Students, parents and teachers will be affected through educational programs and resources in health, science, home economics and physical education classes. Topics will include nutrition, hypertension, elevated cholesterol levels, smoking and physiology and anatomy of the heart and circulatory system.

Students will be screened twice each year for cholesterol, blood pressure, weight and lifestyle behaviors.

History of medicine topic of society programs

The John Shaw Billings History of Medicine Society has announced some of its upcoming meetings.

Dr. Frances J. Fry will speak on "The Early History of Stereotactic Neurosurgery" at 4 p.m. Monday, Dec. 9, in Emerson Hall at the Indiana University School of Medicine in Indianapolis. Dr. Fry is with the Indianapolis Center for Advanced Research.

Dr. Elson Bowman Helwig will speak on "Reminiscences of an Indiana Past" at 4 p.m. Monday, Feb. 24, in Emerson Hall. Dr. Helwig was a dermatopathologist at the Armed Forces Institute of Pathology and originally trained in Indiana.

For details, call Jans Muller, M.D., (317) 274-8577.

Orthopaedics Indianapolis opens office in Zionsville

Orthopaedics Indianapolis has opened a new medical facility in Zionsville, in the St. Vincent Professional Center, 55 Brendon Way.

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Nasser

former state representative, during a ceremony at the Arthur B. Richter Lectureship in Clinical Cardiology in Indianapolis. Dr. Nasser founded Nasser, Smith & Pinkerton Cardiology in 1973.

Dr. William K. Nasser, an Indianapolis cardiologist, received the Sagamore of the Wabash Award from Baron Hill,



Fritsch

Loss. The book is published by Igaku-Shoin.

Dr. Michael H. Fritsch, an otolaryngologist at the Indiana University Medical Center, has authored a book in pediatric otology titled *Congenital and Early Onset Hearing*



Provisor

ulty member at the Indiana University School of Medicine for 16 years.

Dr. J. Scott Pittman has opened a practice specializing in colon and rectal surgery at 13400

Dr. Arthur J. Provisor has joined the Methodist Hospital of Indiana staff as medical director of pediatric oncology; he has been a full-time fac-

Physician Recognition Award recipients

The following ISMA physicians are recent recipients of the AMA's Physician Recognition Award. This award is official documentation of Continuing Medical Education hours earned and is acceptable proof in most states requiring CME in re-registration that the mandatory hours of CME have been accomplished.

Brown, Lorin M., Munster
Brunk, Glen A., Beech Grove
Burt, Robert W., Indianapolis
Coats, Charles W., Greenwood
De Tore, Arthur W., Fort Wayne
Dick, William H., Indianapolis
Frick, Fred W., Indianapolis
Gabovitch, Edward R., Indianapolis
Hamm, Charles W., Indianapolis
Harvey, William D., Logansport
Hernandez, Graciela E., Highland
Mohnssen, Steven R., Terre Haute
Morrison, Andrew L., Indianapolis

Nakamura, Takamitsu, Munster
Pontaoe, Alejandro G., Evansville
Probst, Edward L., Columbus
Read, Peter D., Danville
Schmetzer, Alan D., Indianapolis
Sechrist, Keeter D., Indianapolis
Spellmeyer, John C., Richmond
Stein, Mark H., Indianapolis
Stephens, James E., Brazil
Surian, Michael A., Bloomington
Van Putten, Douglas J., LaPorte
Webb, Rosalind H., Zionsville

N. Meridian St. in Carmel.

Dr. Thomas P. Glynn Jr. of Richmond was named a fellow of the American College of Radiology during the ACR annual meeting in Minneapolis.

Dr. Manuel A. Cacdac, a Terre Haute neurosurgeon, was inducted as president of the Indiana Philippine Medical Association for 1991-92.

Dr. John D. Slack, an Indianapolis cardiovascular diseases specialist, was re-elected president of the Marion County Division of the American Heart Association.

Dr. Ronald G. Blankenbaker, vice president of medical affairs at St. Vincent Hospital in Indianapolis, was elected vice president.

Dr. Joseph C. Kerlin, a Danville family practitioner, received a certificate of appreciation for his service as Hendricks County Jail physician for the past eight years.

Dr. Robert E. Darnaby, a Rensselaer family practitioner,

received a certificate for his work for the American Cancer Society Crusade.

Dr. Maurice E. John, medical director of the John-Kenyon Eye Center in Jeffersonville, was the featured speaker at the Fourth International Congress of Cataract and Refractive Surgery in Johannesburg, South Africa.

Dr. William R. Penland of Evansville was elected president-elect of the Indiana Academy of Ophthalmology.

Dr. Daniel E. Edquist, a LaPorte family practitioner, was named the medical director of Hospice, a program providing care for the terminally ill and their families.

Dr. Panayotis G. Iatridis of Gary was honored by the Asian American Medical Society for outstanding achievement and contributions in medical education. He is assistant dean of the Indiana University School of Medicine and director of the

Northwest Center for Medical Education at Indiana University Northwest.

Dr. David L. Alvis, an Indianapolis ophthalmologist, received the Otis R. Bowen Physician Community Service Award from the Indianapolis Medical Society.

Dr. Meredith B. Gossard, a retired Tipton family practitioner and anesthesiologist, was the grand marshal of the Tipton County Pork Festival Grand Parade. □

New ISMA members

Robert L. Allen, M.D., Columbus, urological surgery.

Dann L. Bailey Jr., M.D., Elkhart, internal medicine.

Debra D. Davis, M.D., Richmond, pediatrics.

Edward J. Diekhoff, M.D.,

Franklin, general surgery.

Pablo R. Esguerra Jr., M.D., Linton, emergency medicine.

Marc A. Jones, M.D., Bedford, ophthalmology.

Nancy A. Kennedy, M.D., Lawrenceburg, internal medicine.

Victor R. Levin, M.D., Kokomo, internal medicine.

Thomas G. Luerssen, M.D., Indianapolis, neurological surgery.

Robert P. Marske, M.D., Indianapolis, anesthesiology.

Gary S. Midla, D.O., Mooresville, family practice.

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INDIANA MEDICINE

The Journal of the Indiana State Medical Association

December 1991

Vol. 84, No. 12



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December 1991

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Vol. 84, No. 12

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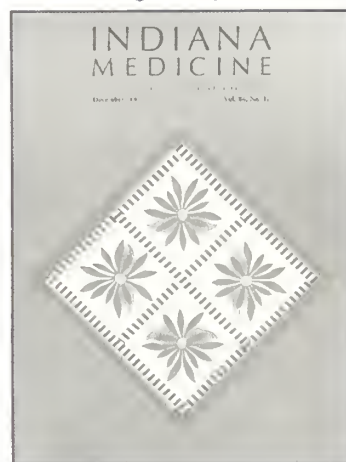
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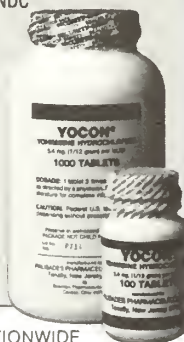
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

How Supplied: Oral tablets of Yocon® 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

References:

1. A. Morales et al., New England Journal of Medicine: 1221, November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

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INDIANA MEDICINE to change contents and publish bimonthly

Beginning in January 1992, *INDIANA MEDICINE* will change the focus of its contents and the number of issues published annually. Articles on socioeconomic, practice management, legal, ethical, financial and regulatory topics targeted toward practicing physicians will be included in each issue. The journal will switch to a bimonthly publication schedule, with issues in January, March, May, July, September and November, instead of monthly.

The changes are being made as a result of findings from a recent *INDIANA MEDICINE* readership survey and the recommendations of a communications task force.

Indiana will not participate in HCFA pilot project

The Health Care Financing Administration (HCFA) has reduced the scope of its pilot project for review of care provided in the physician office setting. HCFA also announced Indiana will not participate in the project, and Indiana physicians will not be recruited to participate.

Under the direction of the Wisconsin PRO, Indiana and five other states planned to test the feasibility of a particular approach to the review of care in the physician office setting.

ISMA sponsors seminar on INCAP for state legislators

Eleven state legislators and a staff member of the Indiana Department of Insurance attended an ISMA INCAP seminar Nov. 16 in Bloomington. The seminar provided policymakers an understanding of INCAP, the Indiana Compensation Act for Patients, as Indiana's Medical Malpractice Act is referred to.

John Render, an Indianapolis attorney who lobbied for the original bill in 1975, explained the law and the malpractice climate in 1975. Geoff Segar, an Indianapolis attorney who defends physicians in malpractice cases, outlined how a patient collects damages in a malpractice case. Eleanor Kinney, a professor at the Indiana University School of Law, presented the findings from a study she conducted for the Robert Wood Johnson Foundation. The study shows that on large malpractice claims Indiana patients recover more damages than claimants in Michigan or Ohio, even though neither of those states has a cap on damages. Kevin Kelly, associate director of the Michigan State Medical Society, explained the policy impact of Michigan's poor malpractice climate.

'Evening with the Stars' theme of ISMA legislative reception

The ISMA and the Indiana Medical Political Action Committee (IMPAC) will sponsor the annual legislative reception Wednesday, Jan. 15, from 6 to 8:30 p.m. at the Hyatt Regency Hotel in downtown Indianapolis. "An Evening with the Stars" is the theme of the event, which is open to all ISMA members and members of the Indiana General Assembly. For details, call Susan Grant, (317) 261-2060 or 1-800-969-7545. □

■ from the museum

The Indiana Medical History Museum received an excellent opportunity to make improvements to its historic structure this year when the museum accepted a \$10,000 matching grant.

The grant was awarded by the Indiana Department of Natural Resources' Division of Historic Preservation and Archaeology. The U.S. Department of the Interior provides the money for this grant program through the Historic Preservation Fund.

The museum will use the matching grant to install a new roof on the rear portion of the historic structure. The current roof, which is more than 25 years old, received its last repair in 1990, when the museum replaced the flashings around the skylights.

Besides installing a new roof, this project will include repairing three skylights and replacing the gutters in several locations. This work also will entail tuck-pointing any damaged masonry.

In addition, the museum will use the matching grant to construct a handicapped-access ramp. The structure will allow admittance to seven of the 12 historical rooms and the museum's exhibits gallery. The matching grant also will enable the museum to install automatic change-over thermostats for the building's temperature control unit. The improvement will help the museum provide the constant interior temperature necessary to preserve more than 15,000 artifacts.

To make these improvements, the museum must match the \$10,000 the grant offers on a 50-50 basis. According to the Department of Natural Resources, the grant provides one dollar for every dollar the museum raises.

The Indiana Medical History Museum decided to approach

potential donors about this opportunity to make the needed improvements during this year's annual operating campaign. The donation card mailed last month to Indiana physicians includes a separate box in which to indicate a contribution beyond the amount given to support the museum's operating expenses.

The annual campaign helps raise funds to support various aspects of the museum's operations, such as the costs of utilities and maintenance. The individual and corporate contributions enable the museum to remain open to provide its diverse programs.

These private contributions represent an important part of the financial support the museum requires. Besides this assistance, the museum receives funds from the donations physicians make through the Indiana State Medical Association and from individual memberships in the museum.

The donations physicians make through the ISMA occur when physicians check the "Med Mus" box on the ISMA dues form.

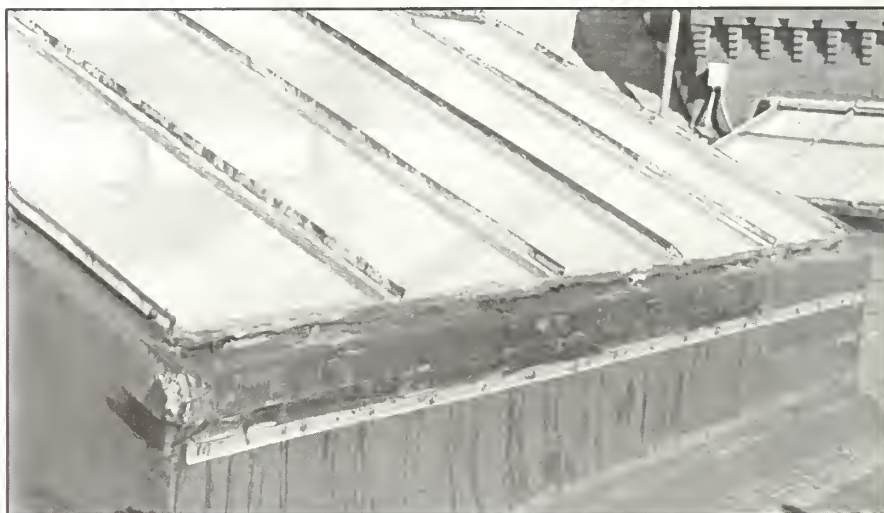
The \$15 donation entitles a physician to membership in the museum, helps defray the costs of printing the museum's newsletter, *Snakeroot Extract*, and supports various programs and exhibits.

For years, these donations and the individual memberships were the museum's primary source of financial support. However, increasing costs prompted the museum to conduct its first annual operating campaign in 1989.

This year, the museum hopes to raise more than \$18,000 during the annual operating campaign. However, those funds remain separate from the donations needed to match the \$10,000 grant.

The museum needs additional support this year to meet both financial challenges. With these contributions, the museum will continue to preserve the state's rich medical heritage. □

The Indiana Medical History Museum is located at 3045 W. Vermont St., adjacent to Central State Hospital, in Indianapolis. Call (317) 635-7329 for more information.



Donations given to match the \$10,000 grant awarded by the Indiana Department of Natural Resources' Division of Historic Preservation and Archaeology will help restore the museum's three skylights.



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Indiana University

The Indiana University School of Medicine will sponsor this course:

- Dec. 20** - Anxiety and Depression in the Elderly: Psychotherapy and Psychopharmacology, University Place Conference Center and Hotel, Indianapolis.

For more information, call the registrar, (317) 274-8353.

University of Michigan

The University of Michigan Medical School will sponsor these courses:

- Jan. 27-29** - Fiberoptics Workshops for the Difficult Airway, Disney's Yacht and Beach Club Resorts, Lake Buena Vista, Fla.
- Feb. 2-7** - Midwinter Family Practice Update, Boyne Highlands Inn, Harbor Springs, Mich.
- Feb. 28-** Advances in the
Mar. 1 Management of Infectious Diseases: Update 1992, South Seas Plantation, Captiva Island, Fla.
- Mar. 8-11** - Fiberoptics Workshops for the Difficult Airway, Red Lion's La Posada Resort, Scottsdale, Ariz.
- Mar. 17-21** - Family Practice, 15th Annual Spring Re-

view Course, The Towsley Center, Ann Arbor, Mich.

For more information on these courses, call Angela Voeller at (313) 763-1400.

University of Wisconsin

The University of Wisconsin School of Medicine will sponsor these courses:

- Feb. 28-29** - Orthopaedics in Primary Care, Edgewater Hotel, Madison, Wis.
- Apr. 1-3** - Electrophysiologic Basis for the Diagnosis and Management of Cardiac Arrhythmias, Hyatt Regency Hotel, Milwaukee, Wis.
- Apr. 23-24** - The Heart of Cardiology is (Still) Echocardiology, Marc Plaza Hotel, Milwaukee, Wis.
- May 5-7** - 15th Annual Sports Medicine Symposium, Holiday Inn-West, Madison, Wis.
- Oct. 16-17** - Lumbar Spine and Back Ache, Holiday Inn-East Towne, Madison, Wis.

For more information, call Sarah Aslakson at (608) 263-2856.

Ohio State University

The Ohio State University College of Medicine will sponsor these courses:

- Jan. 18** - Tardive Dyskinesia Update: Risks, Pre-

vention and Management, Marriott Inn North, Columbus, Ohio.

- Feb. 15-16** - Infectious Diseases, Hyatt on Capitol Square, Columbus, Ohio.

- Feb. 22-23** - Gastroenterology Update, Hyatt on Capitol Square, Columbus, Ohio.

- Feb. 28-29** - High-Risk Obstetrics: Obstetric Emergencies, University Ramada Inn, Columbus, Ohio.

- Mar. 6-7** - 35th Annual Postgraduate Ophthalmology Symposium: Diabetes Mellitus: Ophthalmic Perspectives, Hyatt on Capitol Square, Columbus, Ohio.

- Apr. 11** - Rheumatology for the Non-Rheumatologist, Marriott Inn North, Columbus, Ohio.


- Apr. 24-25** - Sports Medicine, J. Leonard Camera Center, Columbus, Ohio.

- May 2** - Cancer Pain Management, Rhodes Hall Auditorium, Ohio State University Hospitals, Columbus, Ohio.

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Recent developments in hereditary nephritis (Alport's syndrome)

Frances S. Bubalo, M.D.
Darrell D. Davidson, M.D., Ph.D.

Alport's syndrome is an inherited chronic glomerulonephritis with hematuria and associated deafness or eye abnormalities. Hematuria, the most frequent presenting symptom, often first comes to attention as an episode of gross hematuria following a childhood upper respiratory infection.¹ It can appear at birth or within the first few months of life.¹ Typically the severity of hematuria lessens as the patient grows older, with recurrent macroscopic hematuria disappearing after the age of 15 to 20 years.¹ Though gross hematuria is an infrequent finding in adults, most will have chronic microscopic hematuria and urinary erythrocyte casts. Following the general rule that affected females manifest a less severe course than males, females often have intermittent, instead of chronic, and microscopic, rather than gross, hematuria² (Table 1). Tishler found 12% to 15% of obligate female heterozygotes never experience hematuria.³

Proteinuria and hypertension increase in incidence and severity with age and are more likely to occur in males than females.^{2,4} Proteinuria is minimal or absent in early childhood but eventually

develops in most affected males.² Nephrotic syndrome ensues in 30% to 40% with Alport's syndrome⁴ and is more likely to occur in those who progress to early renal failure (before age 31).⁵ The peak incidence of nephrotic syndrome in Alport's patients is between the ages of 14 and 20. Increased plasma protein synthesis compensates well for urinary protein losses.⁵ Thus, clinically evident edema is rarely observed,⁵ and serum complement concentrations are normal.⁵

Diagnosis is usually made before age 6, although females are often diagnosed later than males.^{1,6} In mildly affected people, the urinary abnormalities may not be discovered until routine screen-

Abstract

Hereditary nephritis with deafness, or Alport's syndrome, is a familial disorder characterized by progressive renal insufficiency, sensorineural hearing loss and ocular abnormalities. The Alport's nephropathy appears to result from a primary biochemical defect of the glomerular basement membrane, specifically an alteration of type IV collagen. The cardinal clinical manifestation of Alport's is chronic hematuria. End-stage renal disease develops in most affected males, while affected females generally experience a benign renal course. The diagnosis depends on characteristic electron microscopy findings of a variably thickened and thinned glomerular basement membrane with lamellation and basket weaving. Alport's is a genetically heterogeneous disorder with several modes of inheritance. A review of the literature with discussion of the clinical and basic science aspects of hereditary nephritis is presented.

ing during pregnancy or a family investigation.¹ Although end-stage renal failure (ESRF) ultimately develops in practically all affected males, the rate of progression is highly variable.² Renal failure is uncommon before age 15, usually developing between the ages of 20 and 40,⁴ but can appear before age 12 or after age 50 in some males. Once established, renal insufficiency typically progresses inexorably to ESRF over an average of six years.⁵

Rates of progression to renal failure generally show intrafamilial correlation.^{5,7} Atkin's classification scheme is based on division of kindreds into juvenile and adult types based on the age at onset of renal failure⁵ (Table 2).

Table 1

Clinical features of Alport's syndrome

	Male	Female
Age at onset ⁶	newborn-11 yrs.	2-42 yrs., found at family screening
Symptoms ^{1,3,4}	gross hematuria intermittent microscopic h.	microscopic hematuria 12% asymptomatic carriers
Age nephrotic syndrome ^{4,5}	14-20 yrs.	rare, may occur before 40
Age renal failure ^{1,2}	variable, 8-25 yrs., may occur as late as 62 yrs.	variable, 50-75 yrs., may be as early as 12 yrs.
Age 50% mortality ⁸	32 yrs.	61 yrs.
Hearing loss ^{1,6,8}	71-81%	19-39%
Anterior lenticonus ¹	30-47%	rare - 18%
Retinal lesions only ^{1,13}	0-18%	up to 25%
Macrothrombocytopenia ^{4,14}	2%	4%

However, Gubler's study of 58 cases revealed the mean age of renal death was 17 in the probands and 33 in their ascendants.¹ Thus, in individual cases the onset of renal insufficiency cannot be predicted from the family history alone. Factors that suggest a poor renal prognosis include male sex, increasing proteinuria, nephrotic syndrome, anterior lenticonus and gross hematuria in childhood^{1,4,8} (Table 3).

The wide clinical spectrum of renal involvement in females makes prognosis difficult. Manifestations range from asymptomatic carrier to development of renal failure before age 40.² Most affected females have intermittent slight urinary abnormalities and survive into old age without developing significant renal impairment.^{2,4} The prognosis for females with hematologic abnormalities (Atkin type V) is similar to males.⁵ The incidence of toxemia, prematurity and spontaneous abortion is increased in affected females. In those with mild disease, however, pregnancy may

cause a transient aggravation of renal symptoms without adversely affecting renal function.^{1,2,5}

No treatment has been shown to affect the progression of renal failure in Alport's syndrome. Management of ESRF should follow standard measures, including protein restriction, control of hypertension and institution of dialysis when indicated. Cohen noted Alport's syndrome may be a risk factor for coccidioidomycosis in ESRF patients in endemic areas. Transplantation is a successful treatment of renal failure in Alport's syndrome patients, with no proven recurrence of the disease in the graft. Selection of a living donor must include an extended family history and repetitive urinalysis to exclude asymptomatic carriers and kindred with mild disease.⁵ Absence of certain glomerular basement membrane (GBM) antigens increases the risk of post transplant anti-GBM antibody mediated glomerulonephritis, but the incidence is very low.^{2,5} Anti-GBM antibody titers should be moni-

tored every three months the first several years post-transplantation.⁹ Plasmapheresis and increased immunosuppression have been used to treat the anti-GBM glomerulonephritis with variable results.¹⁰

Auditory defects

Sensorineural hearing impairment affects approximately 64% of patients with renal manifestations of Alport's syndrome and is rarely observed in the absence of renal symptoms.¹ The hearing loss is bilateral, predominating in the middle or high tone range, with maximum hearing loss at 2000 - 8000 hertz.^{1,4} The hearing impairment is never congenital.¹ In early childhood, patients may demonstrate normal audiograms, only later progressing to clinically evident deafness, making a hearing aid necessary. Often deterioration will stabilize in early adulthood.⁴

Middle ear pressure and air conduction tests are normal.⁵ There are no anatomic abnormalities of the tympanic membrane or

ossicular chain. Caloric tests are normal or subtly impaired. At any rate, abnormal vestibular function is never clinically significant. Studies of brainstem auditory evoked responses have indicated the cochlea as the primary site of the aural lesion, though recent investigations have confounded this theory by suggesting the acoustic nerve lesion may precede the end organ dysfunction.

Transplantation has variable effects on the hearing impairment of Alport's syndrome patients. Some have reported improvement,¹ while others have noted no change or deterioration of function. Uremia and dialysis have contributory deleterious effects on hearing of patients with renal failure from any etiology. Sensorineural hearing loss from a variety of causes may stabilize but fails to show improvement with correction of the etiologic insult. It seems unlikely, therefore, that the cochlear defect in Alport's syndrome is correctable by renal transplantation.

Hearing prophylaxis is essential in treating hereditary nephritis patients. Ototoxic drugs such as loop diuretics and aminoglycosides potentiate damage to patho-

logically compromised hair cells and the stria vascularis. When aminoglycosides are necessary, ribostamycin and netilmicin have the lowest nephro- and oto-toxicity. Auditory function should be closely monitored during use. The risks of oral contraceptives should be considered since they can cause cochlear damage through vascular changes.

Ocular defects

Ocular manifestations occur in 15% to 37% of patients with Alport's syndrome^{1,11,12} (Table 1). The most common findings include perimacular changes and anterior lenticonus. Both lesions predominate in males and are strongly associated with deafness and juvenile type nephritis.^{1,4,5} These two ocular signs are highly specific for Alport's syndrome, and their combined presence correlates with poor renal prognosis.¹²

Anterior lenticonus is virtually pathognomonic of Alport's syndrome. In this lesion there is a central circular protrusion of the lens into the anterior chamber. It is bilateral in 75% of patients. Lesser degrees of anterior lenticonus may be difficult to diagnose even by slit lamp. Similar

to the sensorineural hearing loss, anterior lenticonus is not congenital and usually develops in the teens to the third decade.⁵ Anterior lenticonus can cause vision impairment through profound refractive error or occasional lens capsule rupture, necessitating lensectomy and implant.^{4,5}

Retinal lesions are more common in Alport's syndrome than anterior lenticonus. Anterior lenticonus is usually accompanied by retinal lesions,¹² but retinal changes may be seen without lens abnormality.^{1,2} The retinopathy consists of finely granular, light yellow dots and flecks in the perimacular area.^{12,13} These lesions appear to involve the superficial layer of the retina, just beneath the internal limiting basement membrane. Retinal function is unaffected by the flecked retinopathy as evidenced by normal fluorescopic angiography, electroretinograms and electro-oculograms.^{1,12}

Hematologic abnormalities

In 1972, Epstein first described two kindreds with hereditary macrothrombocytopenia, nephritis and deafness. Thirteen years later, Peterson added cataracts and unique leukocyte inclusions

Table 2

Alport's syndrome types⁵ (Atkin's classification)

Type	Inheritance	ESRF before 25	ESRF after 25	Hearing loss	Ocular lesions	Macrothrombo- cytopenia
I	dominant	+			+	
II	X-link dominant	+		+	+	
III	X-link dominant		+	+		
IV	X-link dominant		+			
V	autosomal dom.	+/-	+/-			+
VI	autosomal dom.	+		+	+	

Table 3

Laboratory tests and prognostic signs in Alport's syndrome

Poor prognosis signs ^{4,8}	male sex increasing proteinuria nephrotic syndrome anterior lenticonus perimacular changes hearing loss gross hematuria in childhood mode of inheritance
Diagnostic tests ^{5,16}	GBM ultrastructure silver stain prominence of GBM GBM antigen urinary excretion no staining Goodpasture serum
Mode of inheritance ^{5,8}	80% X-linked dominant 15% autosomal dominant 5% autosomal recessive

to the description, then named the symptom complex the Fechtner syndrome. Platelet function studies and bleeding times are variable. Bleeding complications are generally mild, with childbirth and major operations proceeding without incident after platelet transfusions.^{5,14} Since then, more than 21 cases have been reported.⁴ Pedigree analysis in most kindred is consistent with dominant transmission.² The renal involvement has an unusual pattern in that some affected individuals, including males, have no renal disease.¹⁴ Thus, the relationship of Fechtner's syndrome as a variant of Alport's syndrome requires further clarification and study.

Pathology

Renal lesions – Before the advent of electron microscopy, hereditary nephritis was thought to be a primary chronic tubulointerstitial

nephritis.⁴ This misconception was dispelled by consistent demonstration of early glomerular lesions by light microscopy and electron microscopy. In 1964, Bohrer gave the first description of the cardinal diagnostic feature of Alport's syndrome – GBM thickening with splitting and rarefaction of the lamina densa. But it wasn't until 1972 that those characteristic GBM changes were confirmed by three independent groups.⁶ With the experience obtained from electron microscopy, pathologists gained the ability to recognize thickening of glomerular capillary walls by light microscopy.^{2,13} Thus, the earlier observation of Kaufman that GBM thickening was the earliest and most frequent change in Alport's nephritis was confirmed.

The light microscope histology is generally identical in all types of hereditary nephritis.

Many findings are nonspecific and of no diagnostic value. In young children, light microscopy is often normal.^{1,4} The most common early lesions are glomerular: segmental proliferation and sclerosis, thickening and rigidity of capillary walls, mesangial hypercellularity and increased matrix, and focal thickening of Bowman's capsule.^{1,2,13} As the disease progresses, foci of tubulointerstitial inflammation, tubular atrophy, thickened tubular basement membrane, interstitial fibrosis and foam cells appear.^{2,5} In advanced stages of the disease (ESRF), chronic inflammatory changes dominate.

Some glomerular or tubular epithelial cells acquire a foamy appearance due to the accumulation of neutral fats and mucopolysaccharides. At one time, foam cells were thought to be characteristic of Alport's syndrome but are now known to be present in other glomerular disease, particularly those associated with the nephrotic syndrome. Interstitial foam cells are common in Alport's syndrome and have been found in 40% of biopsies.^{1,2,5} In the absence of the nephrotic syndrome, foam cells may be a reliable indicator of hereditary nephritis.¹

Several investigators have noted a persistence of fetal glomeruli in early childhood, but these immature, superficially located glomeruli are rarely found after age 20 and involve fewer than 5% to 30% of nephrons.^{1,2,13} Epithelial crescents are sometimes seen. They tend to occur in patients with juvenile disease and portend rapidly progressive renal failure.¹

The most characteristic feature of Alport's syndrome is revealed by electron microscopy and con-

sists of thickening of the GBM with irregular outer and inner contours. There is splitting or splintering of the lamina densa. The GBM thickness may be increased 3- to 5-fold, with a rugose, scalloped subepithelial surface.² Zones of thick, thin and split GBM may be interposed with entirely normal segments.¹ The appearance of the lamellae branching and rejoining in a complex tangle has been described as a basket weave pattern. This discontinuity and rupture of the GBM allows endothelial and epithelial cells to lie in continuity.^{1,13} Foot process fusion occurs without any obvious relationship to the quantity of proteinuria or the severity of the basket weave pattern. Progression of renal failure is clearly associated with progression of the pathologic lesions in the kidneys.

Lamellation of GBM is not absolutely specific for Alport's syndrome and may be seen focally and in conjunction with other lesions in a wide variety of glomerulonephropathies. However, it is generally accepted that if the GBM changes are diffuse and widespread, these changes are highly suggestive of Alport's syndrome.

Genetics

Studies concerning the mode of inheritance of Alport's syndrome have been confounded by a lack of markers and specific diagnostic criteria for the various types of hereditary nephritis. This prevented identification of a clinically homogeneous group for genetic analysis and led to deviations from expected simple Mendelian segregation ratios. With the recent progress in molecular cell biology methods, investigators

have used linkage studies to determine that the prevailing mode of transmission in most Alport's kindreds is X-linked dominant as opposed to autosomal dominant (Table 3). It is now generally accepted that hereditary nephritis is a genetically heterogeneous disorder with X-linked dominant the most common form, then autosomal dominant, and an autosomal recessive form occurring very rarely.^{2,5,8} In the last year, Barker, Atkin, et al have found specific mutations in a type IV collagen gene on the X chromosome in three of 18 Utah kindreds.¹⁵ Thus, aberrations of the gene for a newly discovered chain, alpha-5 of type IV collagen, must account for at least a portion of those genotypes with X-linked Alport's syndrome.

Controversy exists over the prognostic influence of the mode of inheritance, and future studies employing the newly found genetic markers undoubtedly will clarify the relationship. Generally, maternal inheritance has a worse prognosis than paternal.⁸ Pochet's study of 48 kindreds revealed a mean renal survival of 25 years for X-linked dominant males compared to 51 years for autosomal dominant males.⁸ Grunfeld's studies agree, but Atkin's investigations have found a mean renal survival of 31 years for autosomal dominant males, and a bimodal distribution for X-linked forms.⁵

Pathogenesis

Spear first introduced the concept that the basic abnormality in hereditary nephritis resided in a structural gene at a locus governing the composition of basement membrane in the glomerulus, inner ear and lens capsule. He hypothesized that the locus deter-

mined the composition, and, thus structure of basement membrane collagen (type IV). The disruption and distortion of the GBM was a result of structurally and functionally deficient matrix components, resulting in faulty assembly and repair. This theory is attractive since it is consistent with several characteristic features of Alport's syndrome. The basement membranes of organs involved contain the same type of collagenous and noncollagenous glycoproteins. A dominant disorder is more likely to reflect an abnormality in a non-enzymatic protein, such as collagen, than to represent an enzyme deficiency. Light microscope and electron microscope studies confirm the abnormal ultrastructure of the GBM, tectorial membrane and lens capsule.⁵ In further support of this hypothesis, several groups of investigators have documented characteristic patterns of urinary amino acid excretion in affected children. Tina found an increase in excretion of hydroxylysine glycosides, and Lubec demonstrated a unique immunoelectrophoresis pattern of excreted GBM antigens.¹⁶

Immunoblotting studies have provided additional evidence, both supporting and conflicting, on the issue of a primary basement membrane collagen lesion. Two discoveries spurred the recent fervor of GBM antigenicity investigations. Serum of patients with Goodpasture's syndrome exhibits minimal or no binding to the glomeruli of patients with Alport's syndrome. Several Alport's syndrome patients who have undergone renal transplantation have developed anti-GBM antibody mediated rapidly progressive glomerulonephritis. Indirect immunofluorescence studies

with these patients' serum revealed staining of normal GBM, but minimal or no staining of Alport's GBM. These findings suggested that one or more of the normal GBM antigens are missing in Alport's syndrome and that the missing GBM antigens are related to the nephritogenic antigen of Goodpasture's syndrome.

The C-terminus of the type IV collagen triple helix subunits contains a noncollagenous region known as the NC1 domain. This region of the monomer does not spiral with other subunits of the type IV collagen molecule.² The NC1 domain is thought to function as the site where assembly of the triple helix of type IV collagen is initiated, and to connect with adjacent matrix molecules. Three new chains (alpha-3 - alpha-5) of type IV collagen have recently been characterized.¹⁷⁻¹⁹ The Goodpasture's antigenic determinant resides on the NC1 domain of the alpha-3 chain. Several investigators have reported incomplete absence of the alpha-3 chain NC1 component of GBM in Alport's syndrome patients. The actual relationship of the alpha-3 chain and Alport's syndrome, therefore, remains to be established. On the other hand, the alpha-5 chain gene has been localized to the bands Xq22-q23, which is the region known to contain the locus for the X-linked form of Alport's syndrome.¹⁸⁻²⁰ Barker has recently reported mutations in the alpha-5 chain gene in three Utah kindred, confirming that the basic defect in some phenotypes of hereditary nephritis is a defective basement membrane component.¹⁵

Conclusion

Recent investigations into the pathogenesis and molecular genet-

ics of Alport's syndrome have confirmed the impression of many experts that this is not a unitary disease, but a group of related inherited disorders affecting renal, aural and ocular function. Investigators have appreciated for many years that there are X-linked dominant, autosomal dominant and autosomal recessive forms of the disease. Ultrastructural GBM changes and anti-GBM antibodies in Alport's syndrome patients with renal allografts suggest that the underlying abnormality involves a basement membrane structural component. The study of basement membrane structural proteins in Alport's syndrome patients led to the discovery of a defective gene on chromosome X.

A satisfying explanation for Alport's syndrome became apparent when researchers found that the NC1 domain of the alpha-3 chain of collagen type IV contains the Goodpasture's antigen, and that this NC1 domain is altered in Alport's syndrome. Since the location of the genes for the alpha-3 and alpha-4 chains of collagen type IV has not yet been determined, defects in these genes may contribute to the pathogenesis of autosomal forms of Alport's syndrome. There is also a possibility that autosomal forms of Alport's syndrome do not actually exist, but that disagreement on specific diagnostic criteria for this disease may account for its apparent genetic heterogeneity. The finding that the gene for the alpha-5 chain of collagen type IV resides on chromosome X may lead to the development of a molecular test for X-linked dominant Alport's syndrome. Such a test would be valuable for prenatal diagnosis and non-invasive diag-

nosis of this common form of hereditary nephritis. □

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Modern management of aneurysmal subarachnoid hemorrhage

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Surgery for intracranial aneurysms has become successful during the past 30 years. The surgical microscope, microinstruments and sophisticated aneurysm clips have aided significantly in neurosurgery's ability to expose and clip aneurysms. Most cerebral aneurysms requiring medical attention have ruptured, resulting in a subarachnoid hemorrhage (SAH) (acute severe unrelenting headache, meningismus, photophobia and varying level of obtundation with or without focal deficit).

Despite the improved ability to expose and clip aneurysms, the overall management morbidity and mortality for aneurysmal subarachnoid hemorrhage has not changed much in the past 15 to 20 years.¹⁻³ Being involved in the management of aneurysmal subarachnoid hemorrhage, physicians at the Indiana University Medical Center (IUMC) have adopted aggressive strategies to try and improve our management results. The purpose of this article is to update the primary physician on these strategies.

Early diagnosis, transfer and treatment may be important. Previous reports, including our own

experience, suggest that with early diagnosis and surgery of sentinel or symptomatic aneurysms, there is less than 1% mortality or permanent morbidity and an impending catastrophe can be averted.^{4,5} After the aneurysm has ruptured, early attention to oxygenation, blood pressure, intracranial pressure (ICP) and ventriculomegaly may improve the outcome, especially for the more ill patients.^{1,6}

All IUMC patients with suspected SAH are emergently scanned by computed tomography (CT), with a greater than 95% sensitivity. If suspicions are high and the scan is negative, a lumbar puncture (LP) is performed. In the past five years, only one of 97 aneurysmal SAH

Abstract

This article reviews the modern approach and advances in the management of aneurysmal subarachnoid hemorrhage. Early diagnosis along with aggressive medical and surgical clipping appears to reduce morbidity and mortality. Computed tomography scan is > 95% sensitive for diagnosis. Aneurysm clipping within 48 hours has been performed successfully in 44 patients at the Indiana University Medical Center in Indianapolis. Early aneurysm clipping allows a more aggressive approach to managing the 20% to 30% incidence of delayed ischemic vasospasm. These aggressive treatments include transcranial Doppler analysis, volume expansion, hypertensive therapy, hemodilution and calcium channel blockers. Additional treatment strategies are being investigated to prevent vasospasm.

has been CT negative and LP positive. In comatose patients, the patient is intubated and an ICP monitor is placed. If the ICP is elevated, an emergent ventriculostomy is placed and intravenous mannitol is given. Reports suggest this can improve the outcome for this poor grade group.⁶

Following the CT scan, all patients are evaluated with an emergent four-vessel cerebral angiogram. Only about 55% of all spontaneous SAHs are due to aneurysms. The rest are due to arteriovenous malformations, tumors, hypertension, bleeding dyscrasias, anticoagulation and unknown reasons. Following diagnosis management varies for each group. This article considers

only aneurysmal SAH.

Past reports have documented an extensive operative experience with aneurysms. It is well-documented that vasospasm and delayed ischemia from SAH peak around nine days post-bleed.⁷ It is also well-documented that surgery within the four- to 13-day period seems to markedly aggravate vasospasm, increasing the mortality and morbidity.¹⁻³ In the 1960s and early 1970s, the prevailing approach was to wait at least two weeks and operate only on patients who were in reasonable neurologic shape. Poorer grade patients were allowed a longer time to improve or were never operated on. During the two-week waiting period, patients were treated with epsilon amino caproic acid (AMICAR), an antifibrinolytic, to reduce the risk of aneurysmal rebleeding.

Impressive postoperative outcome statistics were reported during this time. However, all the sicker patients were dying before surgery, thus the overall management results were not improving. Recent reports have documented that early aneurysm surgery (within 72 hours) is safe, does not aggravate vasospasm and eliminates the risk of early hemorrhage.^{1,2,8} Early surgery is not easy and only experienced aneurysm surgeons should perform them.

The most difficult problem encountered in the past was an angry swollen brain that could not be retracted, but with the judicious use of lumbar subarachnoid drainage of cerebrospinal fluid, this problem has been conquered. Since 1987, I have done almost all aneurysm surgeries early with no problems in achieving cerebral relaxation. Early surgery eliminates the need for AMICAR, re-

ported to aggravate vasospasm.^{9,10} Also, once the aneurysm is clipped, surgeons can be more aggressive with the treatment strategy for vasospasm. Thus, patients with anterior circulation and easy posterior circulation aneurysms are operated on as early as possible, if the diagnosis is within 72 hours of the bleed. Since 1986, we have performed 44 aneurysm clippings within 48 hours of hemorrhage with no intraoperative mortality and 100% successful clipping.

After surgery, the patient remains in the neuro intensive care unit for a minimum of two weeks. The patient is always maintained on oxygen, has central venous access to measure filling pressures, is kept well-hydrated and is followed with transcranial Doppler (TCD). Reports have documented that the TCD is a safe, noninvasive reliable way to follow velocities in the middle cerebral and anterior cerebral arteries near the circle of Willis.¹¹ With the onset of vasospasm, the velocities always rise a couple of days before clinical deterioration.¹¹ Thus, we appear to have a reliable device that predicts which patient will get into trouble from vasospasm. In those 20% to 30% of patients who have trouble from vasospasm, reports suggest that the following treatments may help: 1) Swann Ganz

catheterization to monitor aggressive volume expansion with plasminase; 2) induced hypertension with the volume expansion and inotropic support (dopamine/dobutamine); and 3) hemodilution to a hematocrit of 30.^{12,13}

Additionally, many reports have suggested that calcium channel blockers reduce the severity of vasospasm and may improve the outcome for survivors.¹⁰ Oral

nimodipine is commercially available. Intravenous nicardipine will soon be commercially available. Our center has had extensive experience with both. The data from the National Institutes of Health Cooperative Study on the use of nicardipine in aneurysmal SAH, which we participated in, suggest it is effective against vasospasm but should only be used when indicated and not prophylactically. The calcium channel blocker is not the magic bullet, and outcome statistics remain somewhat stagnant, with 68% overall good outcome during the past 10 years.

Additional strategies must be sought to improve the outcome for this disease, which makes up 10% of all strokes. Experimental usage of intracisternal tissue plasminogen activator may have an impact on removing clot rapidly and reducing vasospasm and is being considered for cooperative clinical investigation by the NIH.

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Cardiac rehabilitation services: Is there a case for it?

Efraim Ben-Ari, Ph.D.
Natanyia, Israel

Although cardiac rehabilitation has been widespread in recent years, most would agree that if it would be shown to protect against major fatal and nonfatal recurrent cardiac events, the case for its routine use would be strengthened.

This article provides current knowledge about the following questions:

1. What are the effects of exercise-based cardiac rehabilitation programs on mortality and morbidity?
2. Can lifestyle changes delay, retard or regress the development of atherosclerosis?
3. What are the physiological and psychosocial benefits of exercise training?
4. What are the risks and guidelines for exercise training?

Risks of exercise training

Although some form of physical training is prescribed for most cardiac patients, it is contraindicated in some (*Table 1*). Because cardiac patients have limited cardiac reserve, exercise may result in sudden death or myocardial infarction (MI). Results from a recent comprehensive study have shown one nonfatal event per 113,332 exercise hours, one MI per 293,990 exercise hours

and one fatality per 783,972 exercise hours.¹⁵ Not only is this incident rate low, but even in high-risk patients (chronic heart failure, ejection fraction $\leq 40\%$ ¹⁵ and patients with high risk of ventricular arrhythmia¹⁷), supervised exercise-related complications (no MI or death) were as low.

Another major concern is that exercise training may have a deleterious effect on myocardial function. Several studies employing short- or long-term physical training did not show adverse effects on cardiac index or exercise ejection fraction.¹⁸ Furthermore, there is more evidence showing no deleterious effect of regular supervised exercise training even in patients with severe left ventricular dysfunction¹⁹ or ventricular aneurysm.²⁰ Thus, provided that exercise is individually prescribed ("patient oriented model"), physical training for most cardiac patients is safe.

Exercise training

Regular exercise training has been associated with several physical benefits. 1) Up to 30% improvement has been reported in maximum oxygen consumption (VO_2), resulting from both peripheral (skeletal muscle) and central (cardiac output) adaptations. As a result, at standard submaximal workload as well as during routine daily activities, myocardial oxygen demand (systolic blood

pressure times heart rate), ST segment displacement, fatigue and angina are significantly reduced (*Figure 1*). 2) In some patients, improvement in stroke volume, electrocardiogram (EKG) or angina threshold heart rate and rate-pressure product has been observed, suggesting enhanced myocardial perfusion (*Figure 2*). 3) Improved physical work capacity occurs in most chronic heart failure patients, with some also showing enhanced ejection fraction with long-term training.¹⁰ 4) Other important changes, such as decreased free plasma catecholamine concentration,¹¹ plate-

Table 1

Absolute contraindications to exercise training

Unstable angina pectoris
Serious systemic disease
Dangerous arrhythmias
Thrombophlebitis
Overt cardiac failure
Recent systemic or pulmonary embolus
Severe obstruction of the left ventricular outflow tract
Severe hypertension
Uncontrolled diabetes mellitus
Dissecting aneurysm
Myocarditis or pericarditis (acute)

let aggregation¹² and increased fibrinolytic activity¹³ and HDL cholesterol, have been observed.

Psychosocial aspects

After a cardiac event, most patients become anxious and lack self-esteem and self-confidence. At least 20% have had some type of perceived disability. In addition, the number of patients who return to work, a major component in resuming a good quality of life, has been disappointing, averaging 85%, 70% and 60% in postpercutaneous transluminal coronary angioplasty, MI and coronary artery bypass graft patients, respectively. Patients who exercise regularly have less anxiety and depression, and more confidence and self-esteem and more than 80% return to full-time work.¹⁴

Mortality and morbidity

The first controlled data showing

significantly lower cardiovascular mortality in patients participating in a long-term exercise training program than controls was presented in 1979 by Kallio et al (Figure 3). The most important information comes from two recent reports that used meta-analysis. Only randomized controlled trials and published data were used, and the intention-to-treat principle was applied. The analysis by Oldridge et al showed a 24% reduction in total mortality and a 25% reduction in cardiovascular mortality in 2,202 cardiac rehabilitation program patients who participated in a program based on exercise and risk factor reduction, compared to 2,145 controls. Recurrence of nonfatal MI was not reduced.

The study by O'Connor et al² showed similar results to those reported earlier by Oldridge. Oberman³ commented that although "basic problems in pool-

ing the data cannot be easily resolved, the consistent findings in meta-analysis from multiple sources imply that middle aged men in exercise-based rehabilitation program after an MI, can anticipate enhanced survival but not decreased risk for recurrence of non-fatal infarction as the result of exercise training."

Atherosclerosis process

The role of lifestyle changes, including lipid lowering therapy, concerning regression and/or reduction in progression of coronary artery disease (CAD) has long been questionable. However, important new information coming from several long-term, randomized trials using coronary arteriography, is now available (Table 2). The results show that not only can the rate of atherosclerosis progression be reduced or retarded, but a significant degree of regression in coronary artery

Table 2

Randomized trials assessing changes in lumen obstruction

<u>TRIAL</u>	<u>N</u>	<u>TREATMENT</u>	<u>OUTCOME</u>
Leiden ⁴	39	Diet	46% no new CAD lesions
CLAS-post CABG ⁵	162	Cloestipol & Niacin & Diet	16% CAD regression 28% decrease in progression
FATS ⁶	120	Colestipol & Niacin; Colestipol & Lovastatin	34% CAD regression 23% decrease in progression
Lifestyle ⁷	48	Diet, exercise, decreased stress	17% CAD regression 18% decrease in progression
Heidelberg ⁸	56	Diet, exercise	25% CAD regression 22% decrease in progression
Frick ⁹	48	Diet & Colestipol/Niacin	24% decrease in progression

NOTE: Smokers were excluded from all studies
CAD - coronary artery disease

Figure 1: Cumulative percentage of deaths from coronary heart disease in cardiac rehabilitation (I) and control (c) groups. Source: Kallio et al: *Lancet*, 2:1091-1094, 1979.

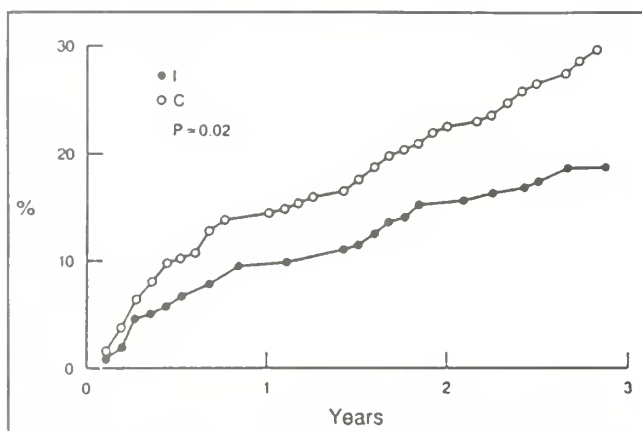
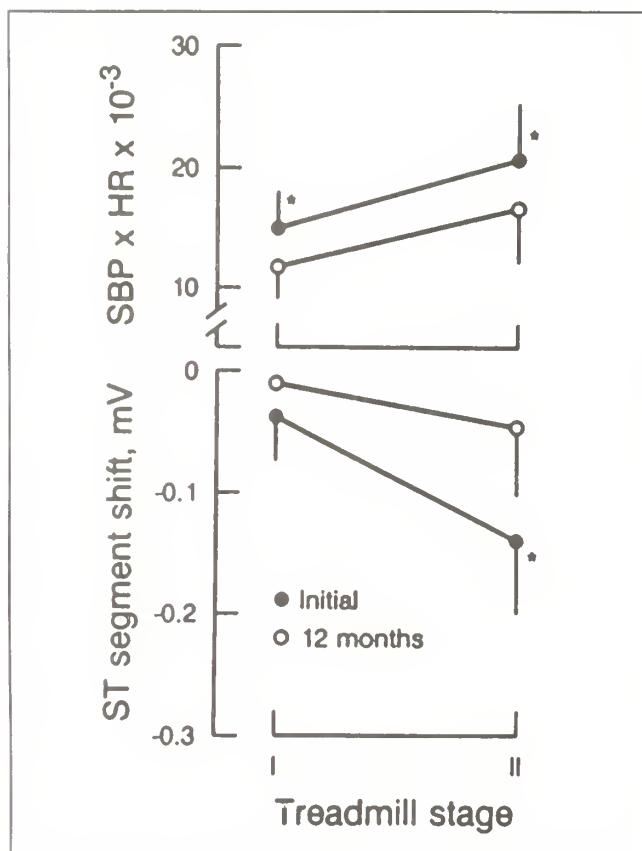


Figure 2: SBP X HR product and extent of ST-segment displacement at submaximal levels of treadmill testing before (0 - 0) and after (0 - 0) 12 months of exercise training. Significant difference from before versus after training. Source: Ehsani et al: *Circulation*, G4:111G-112U, 1971.



obstruction also can be obtained.

Thus, the data imply that a substantial number of cardiac patients can enjoy significant reduction in cardiovascular morbidity and mortality after intensive lifestyle changes, including exercise training, diet and weight management, smoking cessation and lipid lowering therapy.

Guidelines for training program

The efficacy of cardiac rehabilitation, including prescribed regular exercise training and modification of lifestyle, in improving quality of life and reducing coronary atherosclerosis, morbidity and mortality has been established. The need for comprehensive management, rather than exercise training only, after a cardiac event is supported by data indicating significantly reduced physical work capacity and measures of quality of life, and because of the progressive nature of coronary artery disease.

Modifications in lifestyle are not easily accomplished by most cardiac patients. Therefore, instructions and counseling in the form of individual or group discussions regarding the cardiac event/disease, cessation of smoking, dietary guidelines and psychosocial adjustment (i.e., stress reduction, sexual activity, work, self confidence, depression) are necessary components of this service. Leg and arm aerobic exercises, such as walking, bicycling, swimming and arm cranking, are core components of an exercise program. The intensity of the exercise should be 60% to 85% of the symptoms or signs of ischemia, based on an exercise test. On a scale of 0 to 10 (Borg scale), patients should perceive the exercise intensity at 4 to 7, namely "fairly light-somewhat hard." The exercise should be

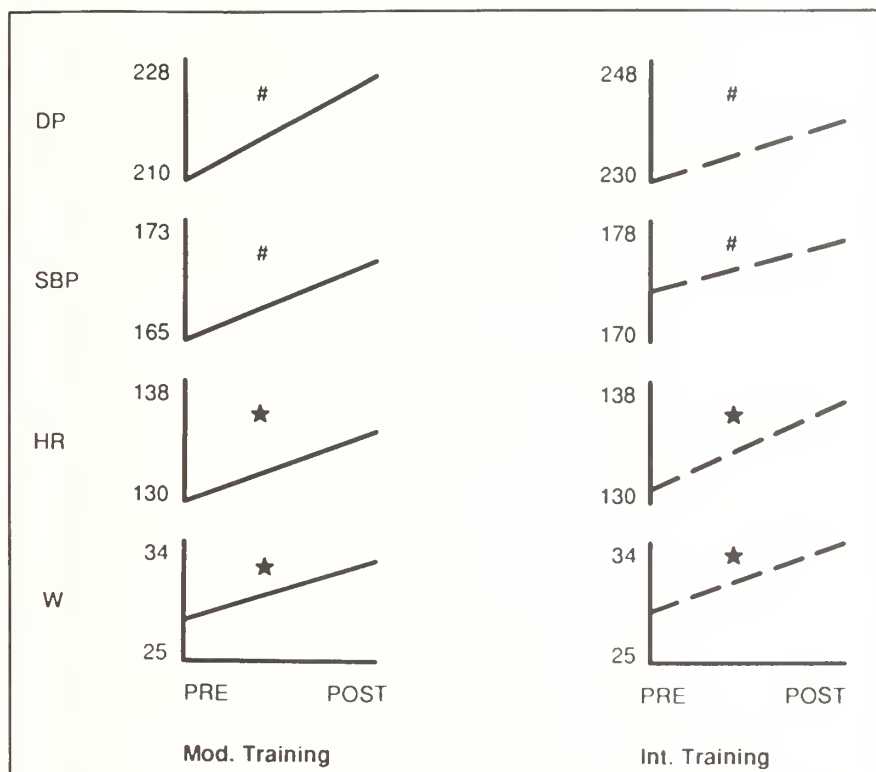


Figure 3: Values pre and post six months of moderate (Mod.) (solid line) versus intensive (Int.) (broken line) leg training on work capacity and cardio-circulatory response at onset of angina during testing of the untrained arms. * $p < 0.0001$; $p < 0.01$. DP = SBP \times HR; SBP = systolic blood pressure; HR = heart rate; W = Watts (bicycle work loads).

Source: Ben-Ari et al: *Am J Cardiol*, 59:231-234, 1987.

continuous and last for 30 to 45 minutes, three or more times per week. □

The author, who now lives in Israel, wrote this article while affiliated with the Indiana Heart Institute/Northside Cardiology in Indianapolis.

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Gastric infarction: A case report

Paul W. Cronen, M.D.
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Gastric infarction is a rare surgical problem. Scattered reports of partial gastric infarction from various causes are found in the literature and include blunt abdominal trauma,¹ arterial atheromatous embolization² and therapeutic embolization.³ Lesser curve gastric necrosis also may occur as a result of selective vagotomy.^{4,5} A case of gastric infarction from bacterial endocarditis has been reported.⁶ Vasopressin used for control of esophageal variceal bleeding has caused bowel infarction,⁶ and a case report of gastric necrosis following vasopressin infusion is found in the literature.⁷ More recently, anorexia nervosa and bulimia have been found to cause gastric necrosis.^{8,9} This report deals with a case in which the entire stomach was infarcted, with the exception of a small portion of the lesser curve, during treatment of bleeding esophageal varices.

Case history

A 38-year-old black woman with a past history of alcohol-induced pancreatitis and cirrhosis was admitted for upper gastrointestinal bleeding. Physical findings included ascites, scleral icterus and other stigmata of hepatic cirrhosis. Initial hemoglobin was 6 g/dL, and the total bilirubin was 16.8 mg/dL (direct 5.0).

Gastric lavage with iced saline was initiated, and cimetidine and Vitamin K were administered in standard doses. Blood and fresh frozen plasma were transfused appropriately. Upper gastrointestinal endoscopy revealed bleeding esophageal varices. Vasopressin therapy was begun at .4 units per minute and gradually increased to .8 units per minute. This level was maintained for approximately 12 hours.

Twenty-four hours after admission, bleeding was still present, and sclerotherapy was performed. A total dose of eight mL of sodium morrhuate was injected. Initially, this appeared to stop the hemorrhage but re-bleeding occurred four hours later. Repeat variceal injections were done using another 4 mL of sodium morrhuate. Further bleeding recurred eight hours after the second injection, and a Sengstaken-Blakemore tube was inserted. Despite these measures, continued bleeding ensued and operative treatment was planned. At laparotomy, the entire stomach appeared to be infarcted from several centimeters above the esophago-gastric junction to the level of the pylorus. There were no other sites of intestinal infarction. An esophago-gastrectomy and splenectomy were performed. Pathology of the specimen revealed esophago-gastric varices with transmural infarction of the stomach. Histologically, a small area of the lesser

curvature was spared. No thrombi were found within the associated vessels nor were any demonstrated at laparotomy. The patient died of coagulopathy shortly after the operation.

Discussion

Gastric infarction, either focal or subtotal, is a rare event, and the literature is limited to a few case reports that deal with focal areas of necrosis. Cohen reported three cases of total gastric infarction, but the autopsy reports revealed all had associated small and large bowel infarction, unlike this case.¹¹ As the gastric blood supply arises from four major vessels and includes an extensive collateral system, the stomach is resistant to ischemic necrosis. Even in situations where gastric devascularization is undertaken for massive hemorrhagic gastritis, gastric necrosis is only seen rarely.^{12,13}

Several factors are probably responsible for the gastric necrosis in this case. First, the patient was hypovolemic and hypotensive multiple times. Hemorrhagic shock to low levels (40-50 mm Hg) can reduce gastric flow by as much as 75%, although shock by itself is not a reported cause of isolated gastric infarction.¹⁴ Second, vasopressin can reduce gastric blood flow through its selective vasoconstricting action on the gastrointestinal circulation.¹⁵ Doses used in this case were double the levels that most clinicians feel are safe. Alves reported a case of

partial gastric necrosis following vasopressin infusion, but this occurred in a patient who had a previous gastric resection and splenic artery ligation.⁷

Third, the Sengstaken-Blakemore tube can cause both gastric and esophageal mucosal necrosis in addition to distal esophageal rupture.¹⁶ Excessive traction on the tube was not noted in this case, and balloon overdistension was not found by radiographs.

Sclerotherapy, a fourth factor, is successful in stopping acute bleeding, and complications are usually minor.¹⁷ These include fever, pleural effusion, pulmonary infiltrates, local mucosal slough at the injection site and, rarely, esophageal necrosis and perforation. Histologic studies have shown that the inflammatory changes that occur secondary to sclerotherapy are local findings only,¹⁸ but recent reports suggest that the sclerosing agent may flow retrograde into the gastric veins, thus possibly causing remote thrombosis.¹⁹ Lewis, in his personal experience, including more than 100 patients and 500 sclerosing sessions, has not found any case of gastric infarction or portal vein thrombosis as a result of sclerotherapy. The doses of sodium morrhuate used in these cases were not excessive.

It seems that a combination of etiologic factors was present in this unique case. Caution is thus advised when multiple and repeated modes of therapy are used for esophageal varix bleeding. ▮

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Thoracic outlet syndrome

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Pain and paresthesias in the upper extremity resulting from constriction of the brachial plexus were first described around the turn of the century, and thoracic outlet syndrome was believed to be a common condition. It has become evident in recent years that most patients with painful dysesthesias in their hands and arms have carpal tunnel syndrome, ulnar nerve entrapment or cervical spondylosis or disc. Published reports on this condition are difficult to interpret, particularly because the clinical criteria for making the diagnosis have changed throughout the years. Nonetheless, the condition exists

in varying forms, and, although it is almost impossible to define a discrete syndrome, certain characteristics and findings bear consideration.

Anatomy and pathology

The brachial plexus and the subclavian artery emerge from the neck and the thorax into the subclavicular region through a narrow, triangular space bounded by the first rib below, the scalenus anterior muscle anteriorly and the scalenus medius muscle posteriorly (Figure 1). As these structures pass beneath the clavicle, they arc immediately above the first and second ribs before turning downward to enter the arm. Any reduction in the size of this space may result in compression of the lower elements of the brachial plexus or the subclavian artery and produce neurologic or

vascular symptoms. Most researchers believe that, in most patients, it is the compression of the plexus rather than arterial embarrassment that produces the symptoms.

Thoracic outlet syndrome is produced by a cervical rib or by fibromuscular, tendinous or ligamentous bands. Trauma such as severe clavicle fractures may produce compression of the plexus and/or artery. Postural abnormalities such as the "military brace" position in which the shoulders are held back excessively also have been implicated. Slumping or sagging of the shoulders in or around the fourth decade also may give rise to the symptoms associated with this syndrome.

Clinical characteristics

The signs and symptoms of tho-

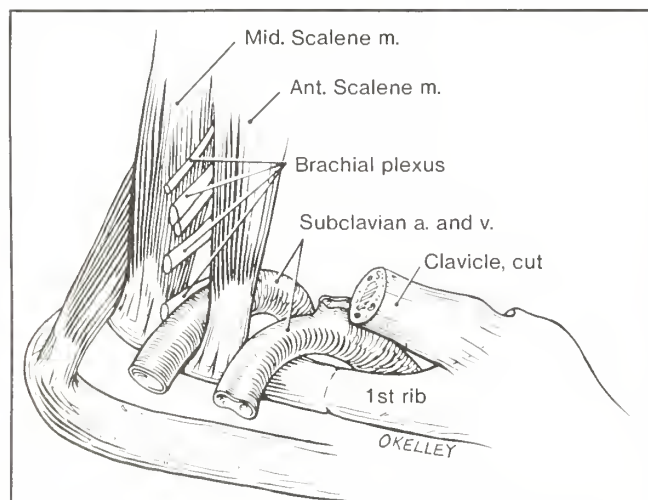


Figure 1: The anatomy of the thoracic outlet. Brachial plexus and the subclavian artery pass from the neck and thorax into the subclavicular region through narrow triangular space bounded by the first rib, the scalenus anterior muscle and the scalenus medius muscle.

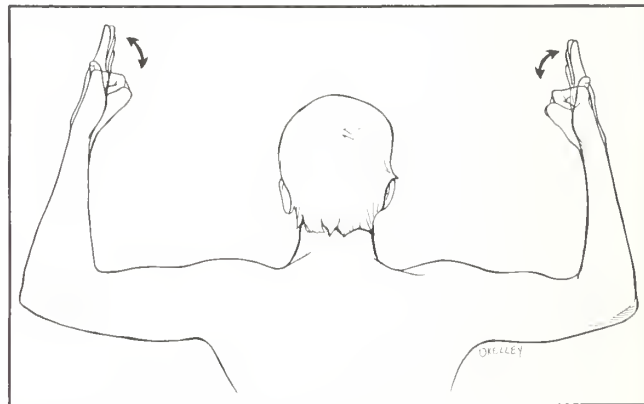


Figure 2: The Roos or EAST (extension-abduction stress) tests for thoracic outlet syndrome. Thumbs are abducted to 90 degrees and the elbows flexed to 90 degrees. The patient then opens and closes the hands repetitively with the shoulders in full extension. When positive, this test will reproduce the patient's pain and paresthesias.

racic outlet syndrome are often vague and nondescript, and the findings of a physical examination are often ill-defined and difficult to interpret.

For most patients with this condition, symptoms of nerve compression will predominate over those of vascular compromise. Paresthesias often precede the development of pain, atrophy or muscular weakness and are most common in the ulnar nerve distribution, the inner aspect of the arm radiating to the small finger. Pain is usually described as an aching or burning that is poorly localized over the entire arm. Characteristically, the discomfort increases in severity as the day progresses, particularly when the patient's activities include repetitive movement of the hands with the arms reaching forward or upward. Return or increase of symptoms when the arms are held overhead is felt to be strongly suggestive of thoracic outlet syndrome. Pain and paresthesias also may be exacerbated by carrying heavy objects, lifting, typing, knitting or playing a musical instrument. The symptoms may be temporarily relieved by shrugging the shoulders and exercising the hands but will return when the inciting posture and activities are resumed. In some patients the discomfort will be worse at night and relieved by swinging the arm.

Patients with arterial insufficiency may present with coldness, aching in muscles and loss of strength with continued use. The hand may become pale or bluish with dependency, and the vascular changes may be confused with Raynaud's phenomenon. Trophic changes or gangrene at the tips of fingers may occasionally be seen, particularly when embolic phenomena result from chronic vascular compression.

Diagnostic features

Physical examination should include a thorough inspection of the extremity for atrophy or signs of vascular compromise. A good neurological examination should be performed as well as provocative tests for other nerve compression entities, such as carpal tunnel syndrome and cubital tunnel syndrome. Tingling and pain may be elicited by direct palpation or percussion over the brachial plexus, which can be felt in the posterior triangle as it emerges from behind the scalenus anterior. Blood pressure determinations in both upper limbs should be made for comparison, and palpation of the neck for a thrill or auscultation for a bruit may add diagnostic information.

Historically, physicians were taught many provocative tests designed to demonstrate compression of the structures passing through the thoracic outlet. The Adson maneuver, the costoclavicular test and the hyperabduction maneuver all depend on changes in the radial pulse. Since it is now well-documented that arterial compression is rarely a significant part of the symptom complex associated with thoracic outlet syndrome, most of these tests should be abandoned or their results deemphasized. The three-minute arm exercise test or EAST (extension abduction stress test) described by Roos² is now the most reliable single test for diagnosing thoracic outlet syndrome (Figure 2). With the patient sitting with the arms abducted to 90 degrees and the elbow flexed to 90 degrees, the hands are opened and closed repetitively while holding the shoulders in full extension. The patient with this condition is almost always unable to complete the test due to pain and paresthesias.

Cervical spine x-rays should

include anterior/posterior, both obliques and lateral views in flexion and extension in an effort to discover a cervical rib and rule out cervical spondylosis. However, the presence of a cervical rib does not necessarily mean that it is the cause of the patient's symptoms. Electromyogram and nerve conduction studies may demonstrate slowing across the supraclavicular fossa and subclavian angiography may also help diagnose thoracic outlet syndrome.

Treatment

Following the diagnosis of thoracic outlet syndrome, a conservative treatment course should be pursued in almost all cases. Patients should be instructed to prevent elbow flexion during sleep and to avoid positions of potential compression of the plexus during the day. In addition, patients should be taught a set of exercises designed to correct slumping shoulder posture. These measures, when rigorously undertaken, can provide substantial benefit for as many as two-thirds of affected patients. When conservative treatment fails or there is significant vascular compromise, surgical intervention, usually in the form of first rib resection, may be necessary. □

This is the last in a series of articles on hand conditions from The Indiana Hand Center in Indianapolis.

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Civil War surgery: Gettysburg, summer of 1863

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Gettysburg was the site of a bloody three-day battle in July 1863 between two great American armies with nearly 165,000 men.¹ General Lee was perhaps overconfident when he led his victorious Army of Northern Virginia into Pennsylvania. General Meade became commander of the humiliated but capable Army of the Potomac just three days before these two armies clashed in a



Figure 1: The 19th Indiana monument on the west slope of McPherson's Ridge marks the site of its stand against the advancing Confederates.

Abstract

Gettysburg was the site of a bloody three-day battle starting July 1, 1863. Field hospitals became busy during the battle and were established in churches, schoolhouses, barns and private homes. The Union field hospitals treated 20,500 wounded Union and Confederate soldiers. Civil War surgeons had little equipment and knowledge, but we can appreciate their contributions to surgery and service to country.

small town July 1.

War wounds were mostly from bullets, while artillery accounted for about 5% and bayonet for less than 1%. The chances of surviving a bullet wound of the extremity were 7 to 1, and most wounds were extremity wounds.² Penetrating chest wounds were 62% fatal, and penetrating abdominal wounds were 87% fatal or 100% if the small intestines were hit.²

The regimental medical staff consisted of one surgeon and two assistant surgeons.² Bacteriology and antisepsis were unknown to these surgeons. The surgeon selected a site for his field hospital a safe distance behind the lines. The hospital often was staffed with the regimental musicians who acted as stretcher bearers and nurses. By 1863, the field hospitals were generally division and corps hospitals staffed by the most skilled surgeons.¹ The assistant surgeons set up aid stations or dressing stations near the battle lines to dress the wounds and send the wounded to the field hospital.^{1,2}

The field hospitals became very busy during battle, with an overwhelming number of wounded men lying on the ground. The dressing surgeon

treated the less seriously wounded by applying bandages.² The operating surgeon was the most skilled surgeon and treated the seriously wounded. He overlooked the mortally wounded who were carried off to the side to die. The operating surgeon would place the wounded soldier on the operating table, often a door. He would quickly examine the patient and decide on surgery. Simple bullet wounds were probed with the finger without anesthesia. Chloroform and ether anesthesia were available for surgery.

Surgical techniques included exploration of the wound with removal of bullet, shell and bone fragments; control of bleeding; and amputation. Excision of bone usually resulted in infection, osteomyelitis, nonunion and a useless limb.² Ligatures were used to control bleeding and became one of the leading surgical advances of the war.² Amputation was done for a limb badly lacerated or an open fracture with comminution. There was controversy regarding amputation versus conservative surgery to salvage the limb. It was thought best to amputate at once to avoid septicemia. The flap technique of amputation could be done quicker



Figure 2: The Hummelbaugh farm house and barn were filled with wounded men on the night of July 2.



Figure 3: General Sickles was at the Trostle farm when his right leg was struck by a cannonball. Note the cannonball hole in the barn.

than the circular technique, but it sacrificed more of the limb and made a bigger wound.²

Dressings were applied wet and kept wet by dripping water (contaminated) on them.² The wounds would suppurate as "laudable pus," which was considered a necessary process for healing. The patients were managed with bed rest and given opiates and liquor for pain.

There were many complaints against the Civil War surgeons who were called "sawbones" because of their "cut first, ask later" attitude.¹ They were accused of drunkenness, desertion of patients when under fire, rough handling of wounds and neglect of the sick.²

The medical director of the Army of the Potomac was Dr. Letterman. He had 650 medical officers and 1,000 ambulances. The Union field hospitals at Gettysburg treated 14,500 Union wounded and 6,000 Confederate

wounded. After the battle, the army moved south, and only 106 medical officers were left to treat 20,500 wounded.²

On July 1, the fighting started west of Gettysburg and spread to the north of town. The Union First Corps deployed west of town with the famous Iron Brigade on McPherson's Ridge. The 19th Indiana Infantry Regiment of the Iron Brigade fought at the site of this monument on the ridge (*Figure 1*). As confederate reinforcements were brought up, the First Corps was driven back through town along with the Eleventh Corps to Cemetery Hill. Surgeon Jacob Ebersole of the 19th Indiana had established his field hospital in the railroad depot. He watched from the upper windows as the Union soldiers retreated through town, taking his horse, while the Confederate troops were taking the town.¹ The field hospitals that day were established in churches, schoolhouses, barns and

private homes.¹

On the morning of July 2, Union troops were well-entrenched on Cemetery Hill, Cemetery Ridge and Culp's Hill. Late that afternoon, the Confederates struck Meade's left flank. General Sickles' Third Corps had advanced in front of the rest of the Union line against Meade's wishes and took the brunt of the assault. General Barksdale's Mississippi Brigade made one of the grandest charges of the war and broke Sickles' line at the Peach Orchard, advancing to the Trostle farm near Cemetery Ridge.

General Barksdale fell with mortal wounds. When given a drink, the water seeped from a hole in his chest.³ Barksdale was found that night by Union troops and taken to the Second Corps field hospital at the Hummelbaugh farm house (*Figure 2*). Blood sprayed from his chest wound with every breath, and his left leg had an open fracture. Dr.

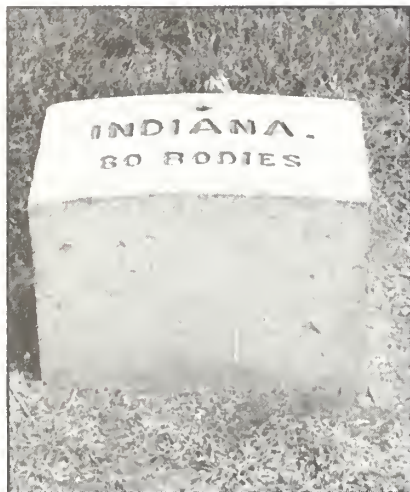


Figure 4: This small marker in the Soldiers' National Cemetery is the resting place for 80 Hoosier soldiers.

Hamilton assured Barksdale that his chest wound was mortal, and the general died that night.³ One major recalled seeing that night a pile of arms and legs, which the surgeons had thrown out of a window of the Hummelbaugh house.¹

General Sickles was near the Trostle barn (Figure 3) during this Confederate assault when a cannonball crushed his right leg. He was taken by ambulance to a field hospital. That night, with chloroform anesthesia, a right above-knee amputation was done under candlelight.³ He wanted his limb saved, and his famous tibia is in the Armed Forces Medical Museum.¹

July 3 was Pickett's charge and the Confederate high-water mark. A way of life was fading, and the Union was somehow surviving.

Camp Letterman was the general hospital established to consolidate the thousands of wounded left behind by the two armies. Camp Letterman closed in November about the same time President Lincoln visited Gettysburg to give a brief address during the dedication of the Soldiers' National Cemetery. This marker is one of many located in the cemetery, and it reads "Indiana 80 bodies" (Figure 4).

Civil War surgeons accom-

plished much with little equipment and little knowledge. It is fitting that we look back and appreciate their contributions to surgery and service to our country. □

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A problem-solving curriculum for active learning

Northwest Center for Medical Education

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During the 1990-1991 academic year and after being approved by the Education and Curriculum Committee and the School of Medicine Executive Committee, the Northwest Center for Medical Education, Indiana University School of Medicine, implemented the Regional Center Alternative Pathway, a problem-solving active learning curriculum.

The general objectives of the Regional Center Alternative Pathway are: 1) to develop new and innovative educational programs based on reorganization of the first and second year medical educational material available; 2) to assist the freshman and sophomore medical students to acquire and apply the necessary knowledge through small group interactive problem-based learning sessions, basic lectures, laboratories and other learning assisting methods; to promote the right attitudes, which will lead to the appropriate behavior; and to develop the necessary skills for the practice of medicine; and 3) to assist the faculty of the Northwest Center to develop tutorial skills and to adapt their teaching and service responsibilities to the needs of the new curriculum.

Specifically in the Regional Center Alternative Pathway, every medical student is expected to work toward the domains of learning that will ultimately lead to the acquisition of the necessary knowledge and to the development of the appropriate

skills and attitudes that will become a part of continued and lifelong professional growth. It is expected that this pathway will ensure that the graduates of medical school will become lifelong learners.

Historical background

Medical education has evolved through the centuries from a transfer of medical knowledge and skills at a personal level, the apprenticeship form, to a more structured didactic approach.¹ Hippocrates, in addition to the personal interaction, used also the method of discourse (dialectike), which reinforced medical education. In the 17th and 18th centuries, two types of medical education developed: 1) the clinical type of medical schools that originated in France and England and continued the apprenticeship form of medical education in a hospital setting, and 2) the university type of medical schools that originated in Germany and spread to Holland, Scandinavia and Helvetia.¹ In the university type, well-trained faculty in basic sciences were the teachers, and the different basic science disciplines originated.

In 1910, the Flexner report adopted a more structured medical education in the United States. Since then, extensive discussions regarding medical education resulted in some changes in the curriculum in several medical schools. The key question, however, which remains unanswered, is "how do medical students learn?"² Kenneth R. Cox and Christine E. Ewan² indicated that 1) relevance, 2) appropriate se-

quence of instruction, 3) active student involvement in learning and 4) adequate feedback on performance are some principles of learning. Engel and Clarke,³ studying the approach of the medical school at the University of New Castle and McMaster University Medical School, suggested that the solution to the problem is to rearrange the subject matter by presenting a series of real problems that the students must actively engage.

In 1969, McMaster Medical School in Hamilton, Ontario, Canada, adopted a radical position regarding medical education.^{6,7,9} In promoting a better atmosphere for discussion and learning, McMaster Medical School introduced, instead of lectures, the small group of five to six students for small group learning in the presence of a tutor.⁶ The current curriculum at McMaster consists of six units, which are a series of interdisciplinary blocks and include the final year of clinical clerkship rotations. It is expected that in this curriculum the medical students will develop independent, lifelong learning skills⁷ through problem-based learning methods.^{6,7}

In 1977 at the University of New Mexico School of Medicine, a small group of faculty proposed an experimental medical school curriculum.^{8,9} The goal of the proposed curriculum was to develop self-directed physicians with lifelong learning skills, who would seek a career in primary care in a rural area. This new curriculum was called Primary Care Curriculum (PCC).^{8,10} As in the McMaster program, the PCC

program offers no lectures and the students learn in small tutorial groups of five with a faculty facilitator or tutor.^{8,10} The subject material of the first two years of medical school was rearranged in seven units.

In 1982, a committee was appointed at Harvard Medical School to study the development of an innovative curriculum for medical students.⁵ At this committee's recommendation, Harvard Medical School introduced the "New Pathway." The core of this program is the use of problem-based discussions and independent study. This is achieved by small groups of eight students who discuss a case problem with a faculty tutor, similar to the McMaster program. The first- and second-year contents are rearranged in six sequential blocks. In contrast to the McMaster and the New Mexico programs, the New Pathway offers a set of lectures, laboratories and conferences, which are designed to reinforce the small group tutorial sessions. Furthermore, the student evaluation includes a small number of written exams in addition to the tutorial evaluation.

There are now several medical schools in the United States and around the world that initiated innovative problem-based curricula.^{4-6,8,11-13} Although there are similarities regarding the problem-based curricula, the sequence of topics and student and curricula evaluations are different and reflect each school's philosophy and available resources.

At the Indiana University School of Medicine and specifically at the Northwest Center for Medical Education in Gary, the director of the program believed that during the last five years the

freshman and sophomore medical students were experiencing a pressure of informational overload and that their goal was not to synthesize the learned material and to solve problems, but rather to study in order to pass an exam. The question often asked by students was, "What do I have to know in order to pass an exam?" rather than, "What do I have to know to become a competent and caring physician?" They argued constantly that certain exam questions did not reflect their handouts and argued extensively that their questions were unfair.

This problem does not seem unique to the Northwest Center. Dr. A. Kaufman¹¹ said in a recent publication that a teacher feels energized by an eager student asking, "How does hyperuricemia cause an inflamed joint like the one I saw in clinic yesterday?" but drained by a student asking, "Do I have to learn about purine metabolism for the upcoming biochemistry midterm examination?"¹¹

The director of the Northwest Center discussed his concerns with Dean Walter J. Daly, M.D., and, with the dean's encouragement and support, initiated a discussion among the center faculty. On May 9, 1989, three senior Northwest faculty, Drs. Hoftiezer, Baldwin and Bankston, accompanied the director to Harvard Medical School. On June 20, 1989, Drs. Vanden Berge, Hoftiezer, Echtenkamp and Iatridis visited McMaster University Medical School.

It became apparent from these visits and from the study of the available literature that there are two extreme positions regarding medical education: 1) the traditional programs, which are totally

structured and completely faculty-directed curricula; and 2) the problem-based learning programs, which are student-directed curricula. The former are the post-Flexner report programs now offered in most medical schools in the United States and Canada and characterized by structured lectures, laboratories and several objective types of exams. The latter are similar to the McMaster Medical School curriculum and characterized by problem-based tutorial learning sessions in small groups of students, no lectures, no laboratories and no formal exams.

The Regional Center Alternative Pathway

After extensive discussion, the faculty of the Northwest Center for Medical Education adopted an innovative curriculum that is a combination of the old (traditional) and the new problem-based tutorial curriculum. The Regional Center Alternative Pathway is a modification of the Harvard Medical School's New Pathway program. The Regional Center Alternative Pathway introduces the problem-based tutorial sessions in addition to a few basic lectures and laboratories. The subject matter on the other hand has been rearranged into eight steps that are presented sequentially. In this curriculum, the emphasis is on the medical students acquiring the necessary knowledge and developing the right attitude and skills of a lifelong learner.

The Regional Center Alternative Pathway is characterized by the following:

1) An integration of traditional first- and second-year content into eight steps, or curricular units, which are presented se-

quentially during the first two years of medical school. Although the different steps reflect in general the traditional basic science disciplines, the problem-based learning sessions provide horizontal correlation across disciplines, while retaining and enhancing in the first year the essential fund of knowledge in basic sciences and emphasizing in the second year, and in particular in Step 8, a more clinical approach. The eight steps of the new curriculum are:

1st Year

Step 1: The Molecular Basis of Medicine (Biochemistry), six weeks.

Step 2: Human Structure (Gross Anatomy, Radiology, Histology, Cell Biology), 11 weeks.

Step 3: Systemic Function and Drug Action (Physiology, Pharmacology), nine weeks.

Step 4: Neural Control and Disease (Neurosciences and Neuropharmacology), seven weeks.

Step 5: Ambulatory Medicine (Basic Clinical Experience), four weeks. (This step is optional but highly recommended. In this step the interested students, at the end of their freshman year, will be assigned to a primary care physician and for four weeks will experience the practice of medicine in an ambulatory setting.)

2nd Year

Step 6: The Life Cycle (Reproduction, Embryology and Genetics), four weeks.

Step 7: Invasion and Defense (General Pathology, Microbiology, Immunology), 10 weeks.

Step 8: Pathophysiology and Advanced Problem Solving, 20 weeks.

Every step is coordinated by a

"Step Master." The Step Master, along with the tutors and lecturers, monitors and evaluates the tutorial sessions, the effectiveness of the presented cases, the lectures and/or laboratories and the students' performance in acquisition of content and in problem-solving process.

2) Problem-based tutorial sessions, where small groups of six to eight students discuss and analyze a weekly medical case problem with a faculty tutor and set the necessary agenda of learning issues for self-directed study. In follow-up sessions, the students refine and synthesize the learned information and, through additional discussion and interaction, set new, advanced learning issues. The medical problems are presented in a case study format designed to reflect the step and the weekly themes.

3) In basic science laboratories, the medical students participate in hands-on activities and, through additional group discussion and problem solving, supplement the tutorials and are able to test certain hypotheses.

4) A minimum of basic lectures designed to supplement each step's content with the problem-based sessions, presented by center faculty, introduce key concepts and guide and orient the medical students to the appropriate learning objectives.

5) The doctor/patient interaction is presented every Thursday afternoon, from 1 p.m. to 3 p.m. The freshman and sophomore medical students learn the art of history taking and physical diagnosis from experienced preceptors.

6) Another afternoon, from 1 p.m. to 3 p.m., special topics are presented, such as behavioral sciences, medical ethics, socio-

economic issues, emergency medicine and biostatistics. These sessions are designed in a problem-solving format, and behavioral, ethical, socioeconomic and statistical issues presented in weekly cases are discussed and analyzed extensively.

Students learn about emergency medicine by being the shadows of practicing emergency medicine physicians. This format has proved to be a successful learning experience for the Northwest Center freshman medical students.

Report and conclusion

The introduction and implementation to the freshman class of the new problem-solving curriculum during the 1990-1991 academic year were very successful. Most faculty members and students were very enthusiastic and highly motivated and contributed significantly to its success. The results of the acquisition of content were very similar to previous years. The freshman medical students, however, indicated that although the experience was very enjoyable, the stress for learning was high. The freshmen were impressed with the different aspects of the problem-solving curriculum and specifically enjoyed the doctor/patient interaction component.

In a survey done near the end of the 1990-1991 academic year, we found that out of 16 students who were assigned to our program, 14 selected the Northwest Center because of the new problem-solving curriculum and two were assigned. At the end of the academic year, 14 medical students reacted favorably toward the problem-solving curriculum, and two reacted unfavorably.

Several members of the clinical faculty at the Indianapolis

campus assisted us in selecting appropriate cases and helped in writing and editing some of them. Our advisory committee under Dean Carter's chairmanship provided significant guidance, and the master's council monitored the implementation of the new curriculum and recommended appropriate changes.

During the 1991-1992 academic year, the sophomore year of the Regional Center Alternative Pathway will be implemented. We anticipate that during the sophomore year the students will acquire the necessary content and will develop the problem-solving skills and attitudes needed to continue their third year of medical education at the Indianapolis campus.

Dr. Fred Ficklin and his program evaluation committee are developing the necessary instrument to be used in order to evaluate objectively the new problem-solving curriculum vis-a-vis the traditional pathway. It is premature to make any statistically sig-

nificant statement regarding the success of the Regional Center Alternative Pathway. Our impression, however, is that so far it is progressing according to the set criteria. When more data are available, we will report them to the Indiana medical community. □

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■ auxiliary report

Andrea Kuipers
ISMA-A Legislative Chairman

Legislation is high on the list of priorities of the Indiana State Medical Association Auxiliary. Of the 24 organized counties belonging to the auxiliary, 21 have appointed legislative chairmen. In fact, one of these legislative chairpersons might be your husband or wife! Check it out.

As a physician and member of the ISMA, you have an extremely valuable asset – the auxiliary – at your service. Not only are we medicine's staunchest allies and supporters, we are knowledgeable, interested, hard-working and above all, we're on your side! What more could you ask for?

If you don't know about your

medical auxiliary and what it does, you are ignoring your best friend. If you are an officer in your county medical society, call your medical auxiliary president, ask who the legislative chairman is and then call that person. Next, start working together. You can best decide on what and how. The important point is to start working together now.

The auxiliary legislative chairperson helps keep membership informed about state legislative issues. They also can help inform your medical society. They receive, read and respond to the ISMA legislative updates and alerts. Why not work together with your auxiliary's legislative chairperson to help set up a county phone alert system? Porter County Auxiliary succeeded in

developing one with little difficulty. Names were solicited from both medical auxiliary and the medical society. All members of the medical auxiliary are now covered by the telephone tree alert system. Physician response was less, but it was a good start. By working together and using the enthusiasm, interest and ideas of your medical auxiliary, more can be accomplished together than by either of us (medical society and auxiliary) working alone.

I want to invite you to the annual ISMA-A Day at the Capitol Wednesday, Feb. 12, 1992, at the Columbia Club in Indianapolis.

We are your auxiliary. Together we can accomplish great things for medicine. □

FOUR MEMBERS ELECTED TO BOARD

Members of the Indiana Medical History Museum elected four new members to the organization's board of directors during the museum's annual meeting last October.

The new members include Glenn W. Irwin, Jr., M.D., former chancellor of Indiana University-Purdue University in Indianapolis; Katherine M. McDonell, the assistant director for marketing and communications at the Indiana University Center on Philanthropy and the museum's previous director; John G. Pantzer, Jr., M.D., a plastic surgeon at Methodist Hospital; and James B. Steichen, M.D., surgeon-in-chief at St. Vincent Hospital and Health Care Center. Museum members elect board members to serve two-year terms.

In addition, the Board of Directors elected its officers for the 1991-1993 term. The officers assumed their positions beginning at the October meeting.

The officers include Walter B. Tinsley, Jr., M.D., as president; T. Neal Petry, M.D., vice president; Rhonda Miller, treasurer; and Dorothy White, secretary. Dr. Petry had served as the board's president from 1989 to 1991.



SNAKEROOT EXTRACT

PUBLISHED BY THE
INDIANA MEDICAL HISTORY MUSEUM
IN ASSOCIATION WITH
THE INDIANA HISTORICAL SOCIETY

NUMBER 22

DECEMBER 1991

MUSEUM LAUNCHES ANNUAL OPERATING CAMPAIGN

The annual operating campaign for the Indiana Medical History Museum this year also provides an excellent opportunity to fund the improvements to the museum's historic structure made possible by a \$10,000 matching grant.

The grant was awarded by the Indiana Department of Natural Resources' Division of Historic Preservation and Archaeology. The United States Department of the Interior provides the monies for this grant program through the Historic Preservation Fund.

In order to make the needed improvements, the museum must match — on a 50-50 basis — the \$10,000 the grant offers. According to the Department of Natural Resources, the grant provides one dollar for every dollar the museum raises.

The museum will use the matching grant to install a new flat roof on the rear portion of the historic structure. The current roof, which is more than 25 years old, received its last repair in 1990 — when the museum replaced the flashings around the skylights.

Besides installing a new roof, this project

will include repairing the building's three skylights and replacing the gutters in several locations. This work will entail tuck-pointing any damaged masonry as well.

In addition, the museum will use the matching grant to construct a handicapped-access ramp. The structure will allow admittance to seven of the twelve historical rooms and the museum's exhibits gallery.

The matching grant also will enable the museum to install automatic change-over thermostats for the building's temperature control unit. This improvement will help provide the constant interior temperature necessary to preserve the museum's collections.

The Indiana Medical History Museum decided to approach potential donors about
(See "Campaign" on Page 4)



Donations given to match the \$10,000 grant awarded by the Indiana Department of Natural Resources' Division of Historic Preservation and Archaeology will help restore the museum's three skylights. However, those funds remain separate from the donations needed to support the museum's operating expenses.

HISTORICAL SOCIETY INTEGRATES SPECIAL INTEREST SECTIONS

The Indiana Historical Society recently integrated its four special interest sections into the organization's divisional structure.

The integration allows the Indiana Historical Society to respond better to the diverse interests of the organization's nearly 10,000 members. The move, however, does not diminish any benefits offered to the society's members.

The special sections — Archaeology, Black History, Family History and Medical History — were organized through the years by people who had specialized interests within Indiana history.

Although logical when drafted, the arrangements lacked consistency from group to group and, by the 1990s, did not reflect the society's organizational structure.

The Indiana Historical Society presently contains four divisions — Research Projects and Grants, Library, Publications and Field Services. As a result of the integration, these divisions now support the activities and publications previously offered by the special interest sections.

A genealogy committee of the Publica-

tions Division and a genealogy program committee of the Field Services Division now support and encourage the genealogical publications and programs previously offered by the Family History Section. With the advice of these committees, the society will continue to publish *The Hoosier Genealogist*, to offer genealogical workshops and to develop new initiatives.

The Publications Division also will continue to publish and distribute *Black History News and Notes*, previously offered through the Black History Section, and the volumes in the prehistory research series, previously offered through the Archaeology Section. In addition, the society will continue its relationship with the Glenn A. Black Laboratory of Archaeology at Indiana University.

The integration of the Medical History Section does not effect the publication of *Snakeroot Extract*, which the Indiana Medical History Museum now publishes. As with the other publications, the society will offer this newsletter to those members who request the publication.



SURVEY INDICATES READERS' ENJOYMENT

A survey conducted earlier this year revealed that 98.5 percent of the readers enjoy *Snakeroot Extract*, the newsletter the Indiana Medical History Museum publishes in association with the Indiana Historical Society.

The society, which conducted the survey last February, mailed questionnaires to the more than 1,700 members of the organization's Medical History Section. The society recently integrated the Medical History Section and the three other special interest sections into the organization's divisional structure.

Of those people who responded, 98.5 percent indicated that they like (72.3 percent) or strongly like (26.2 percent) *Snakeroot Extract*. Only 1.5 percent noted that they did not like the newsletter.

The majority of readers (51.3 percent) indicated that they enjoyed the newsletter's blend of news and informative articles. However, 48.3 percent of the respondents expressed that they prefer only informative articles that discuss various aspects of medical history.

When asked to identify those subjects the newsletter should cover, 79.3 percent indicated that the articles should focus on early medical practices. In addition, 66.2 percent said that the newsletter should print excerpts from medical diaries, letters or journals, and 65.7 percent noted that the newsletter should contain more information about folk medicine.

Snakeroot Extract derives its name from the white snakeroot plant, which significantly impacted medical history in Indiana. Many early Hoosiers experienced milk sickness, a mysterious disease the cause of which remained unknown until the 1920s. At that time, physicians traced the disease to the white snakeroot, or rather, to the consumption of milk from cows that had grazed on the plant. The white snake root contains the poison tremetol.

The Indiana Medical History Museum publishes *Snakeroot Extract* in association with the Indiana Historical Society. Thus, the members of the museum and the members of the Indiana Historical Society (who request this publication) receive this newsletter. Individuals should direct questions about membership in the Indiana Historical Society to: Indiana Historical Society, 315 West Ohio Street, Indianapolis, IN 46202-3299, (317) 232-1882.

Interested individuals should submit items for publication and direct any inquiries about museum membership to: Oren S. Cooley, Indiana Medical History Museum, 3000 West Washington Street, Indianapolis, IN 46222-4055, (317) 635-7329.

MUSEUM OFFERS BUTTONS

Interested individuals now may purchase buttons that depict the logo of the Indiana Medical History Museum.

The logo consists of a sketch of the exterior facade of the museum's historical structure. Completed in 1896, the two-story, Victorian-style building originally served as the Pathology Department for

Central State Hospital.

A person may purchase the oval-shaped button, which costs \$1 each, at the museum or by mail. To order by mail, individuals should complete and return the order form contained in the *Snakeroot Extract*.

I wish to purchase a button(s) that depicts the logo of the Indiana Medical History Museum. I have enclosed \$1 for each button, plus an additional 50 cents to cover the shipping expenses for the entire order.

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Please mail the completed form and a check made payable to the Indiana Medical History Museum to: Indiana Medical History Museum, 3000 West Washington Street, Indianapolis, IN 46222-4055.

THERMOMETER'S ACCEPTANCE INCREASED SLOWLY

Unstandardized scales, inadequate control of fluid and the lack of sophistication delayed the wide-spread acceptance of the thermometer as a valuable diagnostic instrument.

In the 1600s, physicians became interested in the those physiologic conditions under which body temperature should change. As a result, physicians began to explore the possibilities of recording temperature by transferring a patient's body heat to a glass tube.

Santorio Santorio, an Italian professor of medicine at Padua, demonstrated to his students such a device during the early 1600s. The instrument consisted of a glass tube, the bulb of which the patient inserted into the mouth. The physician placed the tube's open end into a liquid-filled vessel and measured the patient's temperature by observing the change in the instrument's reading during ten beats of the pulsilogium, or small pendulum.

The three types of thermometers introduced during the 1600s differed in their fluid content, which consisted of either air, spirit or alcohol, or mercury. Many thermometers were coiled or curved in nature until physicians realized that air responds as quickly to pressure as to heat.

Besides the problems with their shapes, the tubes for spirit- or mercury-based thermometers also proved inadequate to control the even expansion those fluids undergo when heated. As a result, the mercury-based instruments were abandoned until a smaller, more uniform bore could be made in the thermometer's tube.

During the late 1600s and early 1700s, thermometers still lacked universal scales and, therefore, physicians continued their practice of comparing the patient's tem-

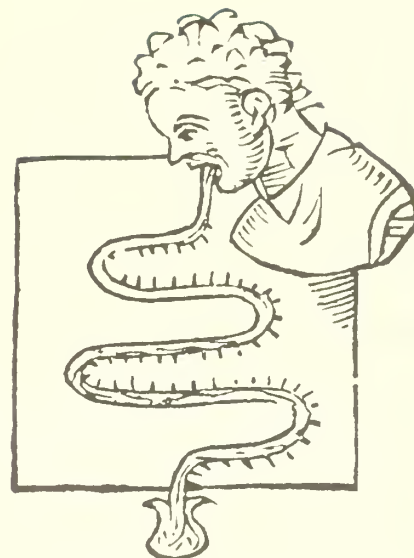
perature to the temperature of the person taking the measurements. However, the development of standardized temperature scales by Daniel Gabriel Fahrenheit and Anders Celsius in the 1700s enabled physicians to determine the average body temperature with either scale.

The uniform expansion of mercury prompted its reintroduction commercially as the preferred liquid for thermometers in 1822, when a method was developed to produce the uniform bore needed for the thermometer's tube. Fascinated by the ability of a small amount of air to move mercury within a tube, John Phillips, a professor of geology at Oxford University, England, designed the self-registering thermometer in 1832.

This type of thermometer, sometimes produced with a length as large as ten inches, contained a half-inch portion of mercury, called an index, that remained separated from the column of mercury by an air space. Although the mercury column receded after the thermometer was removed from the patient, the index remained at the registered temperature until the physician shook the thermometer.

Despite these advances, physicians did not incorporate the thermometer into the spectrum of their diagnostic equipment as quickly as the stethoscope or microscope. In 1866, F. W. Gibson noted this discrepancy when he wrote, "[T]he day is not, I think, very far distant when the physician will consider the thermometer not less indispensable to him than the stethoscope and microscope, and when the surgeon will not neglect the observations of the temperature."

During the mid-1800s, though, the thermometer continued to lack appeal because the instrument did not directly contribute to the prevailing diagnostic patterns. Physicians during this time began to consider alterations of body structure and function as



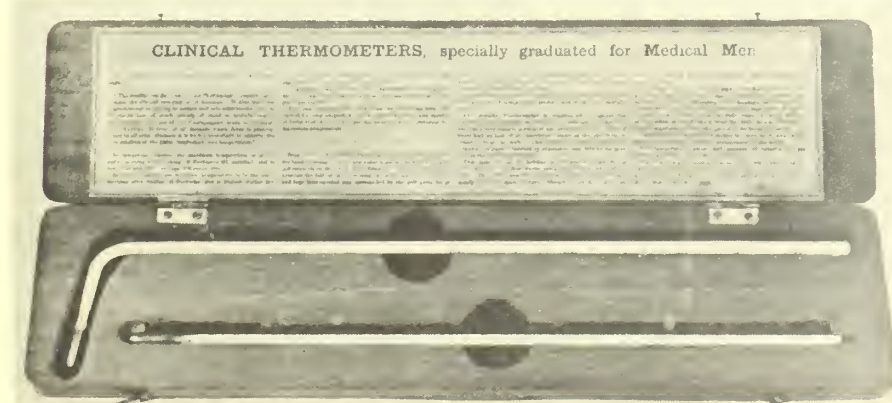
Early thermometers, depicted here by Italian professor of medicine Santorio Santorio in 1625, consisted of a glass tube, the bulb of which the patient inserted into the mouth. After placing the tube's open end into a liquid-filled vessel, the physician measured the patient's temperature by observing the change in the instrument's reading during ten beats of a small pendulum.

the ultimate foci of disease and desired elaborate instruments and laboratory tests to uncover these alterations.

These specialized tools contrasted greatly with the thermometer, which measures a general phenomenon such as body temperature. Coupled with problems of calibration and breakage, this factor relegated the thermometer to its use in hospitals, where attendants could regularly measure the patients' temperatures.

However, research-based physicians embraced the thermometer as another instrument capable of providing objective measurements. In 1868, German physician Carl Wunderlich published his monograph in which he examined the relationship between changes in body temperature and the courses a number of diseases followed. Inspired by Wunderlich, Edouard Seguin, a French-born physician who came to America in 1848, continued his mentor's efforts to educate physicians about the value of the thermometer in medical diagnosis.

By the 1880s, most physicians recognized the value of measuring body temperatures and the maximum opportunities the thermometer offered for use in preventative disease programs. In describing the thermometer's impact on medical diagnosis, Charles Wilson Ingraham in 1895 reflected that, "Though the thermometer is but a piece of glass containing mercury, yet it diffuses information that sways the opinions of physicians in council. . . . We cannot but wonder how our ancestors could have intelligently practiced medicine and surgery without the aid of the thermometer."



Self-registering thermometers, such as these 1865 instruments, utilized mercury because of that substance's ability to expand evenly when heated. During the 1700s and 1800s, physicians typically selected the patient's axilla, or armpit, as the site for taking the body's temperature.

[Sources: *Medicine and Its Technology: An Introduction to the History of Medical Instrumentation* (1981) by Andrew B. Davis, and *Medicine: An Illustrated History* (1978) by Albert S. Lyons, M.D., and R. Joseph Petrucci, II, M.D.]

DONORS, ORGANIZATIONS BENEFIT FROM YEAR-END GIFTS

Studies indicate that people traditionally make year-end donations to help support their favorite organizations. However, those gifts also enable donors to benefit from the current tax laws.

The federal government provides some significant tax benefits to those individuals who give to qualified, non-profit organizations. By recognizing the value of year-end gifts, these benefits enable those contributed dollars to work harder for both the donor and the recipient.

Potential donors have several options available to make their year-end contributions. As a result, people may select those options which best meet their needs.

Although cash remains the most popular method, appreciated stock or real estate also provide excellent options for making year-end donations. The giving incentives for these options currently apply for taxable year 1991 only.

If a person has owned the stock or real estate for at least one year, then the person may deduct the full, fair-market value of the donated stock or real estate as a contribution, thereby avoiding capital gains

taxes. However, the appreciated property must trigger the alternative minimum tax for the donation to qualify.

Year-end donations also may include tangible personal property, such as artwork, furniture and manuscripts. A person who qualifies for the alternative minimum tax may deduct the fair-market value of these donations if the gifts relate to the organization's tax-exempt purposes.

Besides appreciated property, insurance also provides potential donors with a method for making year-end contributions. To qualify, the organization needs to become the owner and beneficiary of the donated policy.

The amount of the contribution for a paid-up policy usually equals the replacement value or cost basis of the policy — whichever amount is the lower figure. The ongoing premiums paid on a gifted life insurance policy also qualify as contributions.

[Interested individuals should consult their professional tax advisors about these and other methods available for year-end donations. All contributions to the Indiana Medical History Museum are tax deductible.]



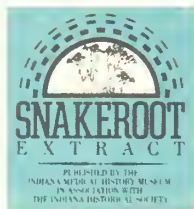
CAMPAIGN

(Continued from Page 1)

this opportunity to make the needed improvements during this year's annual operating campaign. The return envelope mailed last month with the campaign's solicitation letter includes a separate line in which to indicate a contribution beyond the amount given to support the museum's operating expenses.

The annual campaign helps raise funds to support various aspects of the museum's operations. The individual and corporate contributions enable the museum to remain open to provide its diverse programs.

This year, the museum hopes to raise more than \$18,000 during the annual operating campaign. However, those funds remain separate from the donations needed to match the \$10,000 grant.



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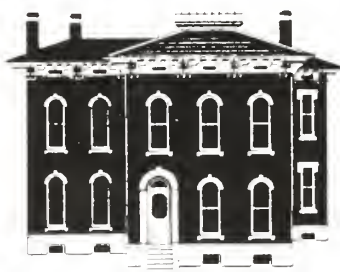
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 11 — Laurence K. Musselman, Marion (1992)
 12 — Charles M. Frankhouser, Fort Wayne (1992)
 13 — Richard J. Houck, Michigan City (1994)
 RMS — Carla Brumbaugh, Indianapolis (1992)
 MSS — Ruchir Sehra, Indianapolis (1992)

AMA DELEGATES (Terms end Dec. 31)

Marvin E. Priddy, Fort Wayne (1991)
 Peter R. Petrich, Attica (1991)
 Herbert Khalouf, Marion (1991)
 John A. Knotte, Lafayette (1992)
 Alvin J. Haley, Carmel (1992)
 George T. Lukemeyer, Indianapolis (1992)

AMA ALTERNATE DELEGATES (Terms end Dec. 31)

John D. MacDougall, Beech Grove (1991)
 William C. Van Ness II, Summitville (1991)
 Richard L. Reedy, Yorktown (1991)
 Shirley Thompson Khalouf, Marion (1992)
 Max N. Hoffman, Covington (1992)
 Edward L. Langston, Indianapolis (1992)

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7 — Pres: Bernard J. Emkes, Indianapolis
 Secy: H. Marshall Trusler, Greentield
 Annual Meeting: To be announced
 8 — Pres:
 Secy:
 Annual Meeting: June 3, 1992
 9 — Pres: Robert E. Darnaby, Rensselaer
 Secy: Stephen D. Tharp, Frankfort
 Annual Meeting: June 10, 1992
 10 — Pres: Filemon P. Lopez, Dyer
 Secy: Barron M. Palmer, Hammond
 Annual Meeting: June 17, 1992
 11 — Pres: Regino Urgena, Marion
 Secy: Frederick C. Poehler, La Fontaine
 Annual Meeting: Sept. 16, 1992
 12 — Pres: William Aeschliman, Fort Wayne
 Secy: Joseph Manthei, Bluffton
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 13 — Pres: David Haines, Warsaw
 Secy: John W. Schurz, South Bend
 Annual Meeting: Sept. 9, 1992

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■ news briefs

Top researchers join IUMC

A handful of the country's top molecular researchers and clinicians in the field of pediatric hematology and oncology recently joined the Indiana University Medical Center (IUMC) in Indianapolis to develop a cancer and blood disease center. This effort was made possible through the support of the Riley Memorial Association and the IUMC, which have established the Herman B Wells Center for Pediatric Research at Riley Hospital for Children.

The center is directed by David Williams, M.D., who uses gene transfer as a therapy to treat certain blood disorders. Dr. Williams' goal is to develop a lifelong cure for severe combined immunodeficiency disease, a genetic disorder in which, in 30% to 50% of all cases, there is a deficiency of adenosine deaminase.

Diabetes research grants now available for 1992-1993

The Juvenile Diabetes Foundation International has announced the availability of grants in diabetes research for the funding year Sept. 1, 1992, to Aug. 31, 1993. Each grant application is subject to scientific peer review by the Medical Science Advisory Board and approval by the International Board of Directors. The application is evaluated on its scientific merit, qualifications, experience and productivity of the investigator, the facilities available and the

relationship of the research to the cause, cure, treatment and/or prevention of diabetes mellitus and its complications.

To obtain an application, contact the Grant Administrator, Juvenile Diabetes Foundation International, 432 Park Ave. South, New York, NY 10016, (212) 889-7575.

AMA launches new family practice journal

The American Medical Association has announced plans to publish a new peer-reviewed scientific journal, the *Archives of Family Medicine*. It is the first new scientific journal launched by the AMA in 65 years. *Archives of Family Medicine* will provide family and general practitioners with original clinical and laboratory research in family medicine, clinical advances in related disciplines and practice information in the form of review and how-to articles. A pilot issue will be published in September 1992 and November 1992, with the regular monthly issues beginning in January 1993.

Artificial smells part of childhood memories

A survey of 989 people by Alan R. Hirsch, M.D., neurological director of the Chicago-based Smell and Taste Research and Treatment Foundation, has found that childhood memories of the smells of the countryside and pine will soon be replaced by those of plastic and airplane fuel as America

becomes more industrialized.

According to the study, those born between the years of 1930 and 1979, now ages 12 through 61, associate their childhood years with the smells of plastic, scented markers, airplane fuel, vaporub, Sweet Tarts and Playdough.

Cataract surgery video available to physicians

"Cataract Surgery," a one-hour videotape featuring through-the-microscope views of a patient's eye as the lens is removed and a replacement is implanted, is now available from WHYY-TV in Philadelphia. Physicians may use the video as an introduction for patients facing cataract surgery. The video contains three-dimensional computer animation that explains eye anatomy and how humans see. The video is \$19.95 plus \$2.50 for shipping. To order, write WHYY-TV, attn: Linda Milburn, 150 N. 6th St., Philadelphia, PA 19106.

Catalog of health and medical films available

The 1991/1992 *Catalog of Entries of the John Muir Medical Film Festival* is available to professionals producing or using audiovisuals for health and medical education. The 76-page catalog lists more than 600 films, videos and interactive media entered in the festival's 1990 competition held in October. To order the 1991/1992 catalog, call (415) 947-5303. □

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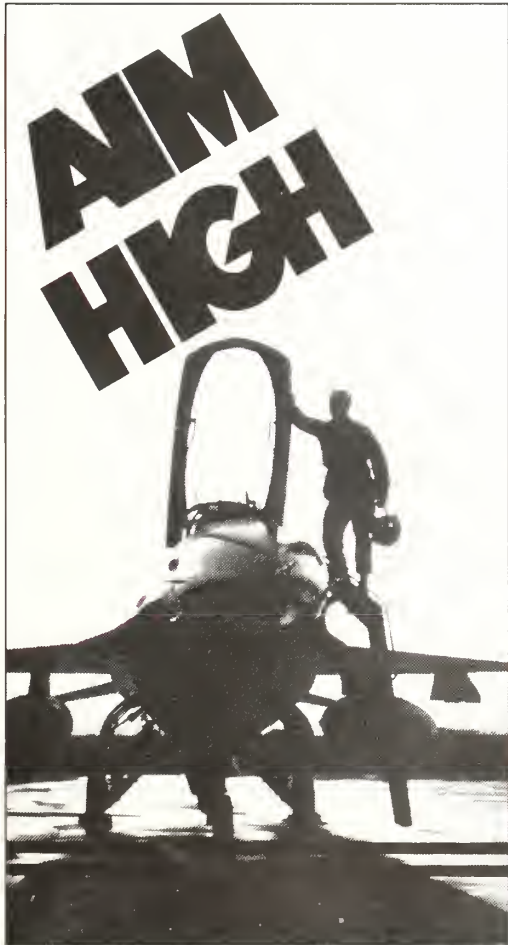
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Dr. Richard T. Miyamoto, an Indianapolis otolaryngologist-head and neck surgeon, received the Honor Award at the annual meeting of the American Academy of Otolaryngology-Head and Neck Surgery. The award recognizes those who have contributed service to the academy without remuneration.

Dr. J. William Bremer, a Lafayette otolaryngologist, was named a fellow of the American College of Surgeons.

Dr. John H. Abrams, an Indianapolis ophthalmologist, presented a program on "The Art of Ophthalmoscopy" at the annual meeting of the Indiana Academy of Physicians Assistants.

Several physicians from the Indiana Hand Center in Indianapolis participated in the annual meeting of the American Society for Surgery of the Hand. **Dr. James W. Strickland** authored two scientific papers presented at the meeting, "Arthrodesis of the Proximal Interphalangeal Joint of the Finger: Comparison of the Use of the Herbert Screw" and "The Hypothenar Fat Pad Flap for Recalcitrant Carpal Tunnel Syndrome," a paper co-authored by **Dr. Richard S. Idler**. **Dr. William B. Kleinman** was chairman of the annual program committee, co-authored a paper on "The Transverse Radio-Ulnar Sensory Branch from the Dorsal Sensory Ulnar Nerve: Its Clinical and Anatomical Significance" and participated in an instructional course on "Instability Patterns in the Wrist: Anatomy, Pathomechanics and Surgical Reconstruction." **Dr. James B. Steichen** presented a paper on "Clinical Results of Vessel Repair by the 3-M Mechanical Coupling Device." **Dr. Hill Hastings II** was involved in four

Physician Recognition Award recipients

The following ISMA physicians are recent recipients of the AMA's Physician Recognition Award. This award is official documentation of Continuing Medical Education hours earned and is acceptable proof in most states requiring CME in re-registration that the mandatory hours of CME have been accomplished.

Amodio, Frank J., Evansville
Baker, George L., Evansville
Bicalho, Jose F., Merrillville
Boling, Grover C., Indianapolis
Brooks, Larry E., Seymour
Caputi, Saverio, Greenwood
Culpepper, Judith A., Indianapolis
Cummings, John T., Indianapolis
Dahling, Fred W., New Haven
Dietz, David J., Muncie
Ferry, Francis A., Indianapolis
Foster, Lowell G., Indianapolis
Gabriel, Magdi, Mishawaka
Guthrie, James U., Peru
Haslitt, Joseph H., Muncie
Healey, Diane W., Carmel
Herrell, Michael A., Evansville
Ho, Gloria R., Riley
House, Jerry L., Indianapolis
Johnson, John C., Valparaiso
King, Leroy H., Indianapolis

Koo, Young S., Hammond
Liffick, Thomas F., Evansville
Marnocha, Kenneth E., Indianapolis
Moayad, Cyrus, Valparaiso
O'Brien Plascak, Marianne, Rensselaer
Ochsner, Edward C., Danville
Penkava, Robert R., Evansville
Plank, Richard S., Michigan City
Poulos, James T., Lafayette
Price, Robert W., Bristol
Ray, Alan S., Anderson
Roush, Steven E., Bluffton
Sankey, Peggy L., Rockville
Schneider, Philip A., South Bend
Stapp, Emily J., Jeffersonville
Steinem, Joseph L., Connersville
Sugarman, Donald R., Fort Wayne
Ungemach, Willo F., Fort Wayne
Wagner, Virginia M., Indianapolis
Warren, Robert J., Richmond
Zale, Douglas A., Chesterton

scientific presentations and participated in an instructional course on "Fractures of the Distal Radius." **Dr. Thomas J. Fischer** co-authored a paper on "Lunate Decompression vs. Proximal Row Carpectomy for Kienbock's Disease" along with Dr. Hastings and Dr. Idler.

Dr. Mark L. Dyken, professor and chairman of the Department of Neurology at the Indiana University School of Medicine, has been named editor-in-chief of *Stroke*. He will serve a five-year term as editor.

Dr. J.C. Bacala, a Scottsburg general practitioner, was declared poet laureate of Indiana at the convention of the Indiana State

Federation of Poetry Clubs. He is editor of *The Quill*, a poetry quarterly, and has written 14 volumes of poetry.

Dr. Robert E. Rogers of Carmel was elected vice chairman of the Army (retired) Section of the American College of Obstetricians and Gynecologists.

Dr. Thomas C. Dugan of Indianapolis was certified in radiation oncology by the American Board of Radiology.

Drs. Thomas J. Fox and **Thomas A. Sonderman** of Columbus have been named diplomates of the American Board of Emergency Medicine.

Dr. Dennis E. Stone of Columbus has been certified in geri-

atric medicine.

Dr. Patricia Harper, an Indianapolis radiologist, was elected president of the Indiana Division of the American Cancer Society, and **Dr. William E. Weber**, a Bloomington plastic surgeon, was chosen president-elect. Volunteer **Dr. Kenneth Marnocha**, an Indianapolis radiologist, received the president's award, and volunteer **Dr. Mike Wiemann**, an Indianapolis oncologist, received the expanding our presence award.

Dr. Newell O. Pugh of Indianapolis was named a fellow of the American College of Radiology.

Dr. A. Alan Fischer of Indianapolis was appointed to the board of directors of the Central Indiana Council on Aging.

Dr. Randolph A. Lievertz has joined the staff of the Indianapolis Medical Group.

Dr. N. Stacy Lankford, an Elkhart urologic and genitourinary surgeon, spent two weeks in Russia meeting with medical officials and observing health care facilities in Moscow and Leningrad. His trip was arranged by the American Center for International Leadership and the Friendship Society.

Drs. Jack L. Walters and **Hugh K. Andrews**, partners in a Franklin family practice since 1979, have retired. Dr. Walters opened a practice in Franklin in 1956, and Dr. Andrews began practicing in Franklin in 1957.

Dr. Richard P. Gripe, a Lafayette cardiologist, has received the Laureate Award from the Indiana Chapter of the American College of Physicians, the highest recognition the organization bestows.

New ISMA members

Roger G. Bangs, M.D., Lafayette,

general surgery.

David A. Belvedere, M.D., Fort Wayne, cardiovascular diseases.

John A. Bolinger, D.O., Terre Haute, internal medicine.

Susan E. Bradford, M.D., Vincennes, anatomic/clinical pathology.

Nancy A. Branyas, M.D., Indianapolis, cardiovascular diseases.

Arnold S. Brill, M.D., Fort Wayne, general surgery.

Edward B. Brockman, M.D., Jeffersonville, ophthalmology.

Charles M. Brohm, M.D., Jasper, anesthesiology.

Lawrence M. Cohen, M.D., Indianapolis, family practice.

William H. Dukes, M.D., Corydon, family practice.

Peter K. Eckel, M.D., New Castle, anesthesiology.

Kathryn B. Einhaus, M.D., Fort Wayne, obstetrics and gynecology.

Larry P. Griffin, M.D., Indianapolis, obstetrics and gynecology.

Cooper R. Gundry, M.D., Indianapolis, radiology.

Mark S. Hazen, M.D., Fort Wayne, cardiovascular diseases.

Kenneth B. Heithoff, M.D., Indianapolis, radiology.

Hugh L. Hennis III, M.D., Indianapolis, ophthalmology.

Douglas J. Kaderabek, M.D., Indianapolis, general surgery.

Ronald G. Kearschner, M.D., Salem, family practice.

James J. Kluzinski, M.D., Indianapolis, family practice.

Louis J. Knoble, M.D., Fort Wayne, anesthesiology.

Leanne S. Lake, M.D., Greensburg, family practice.

David C. Laux, M.D., Danville, family practice.

Michael H. Levine, M.D.,

Indianapolis, neurology.

Mary Nan S. Mallory, M.D., Corydon, emergency medicine.

Robert A. McCardle, M.D., Cloverdale, family practice.

Jeffrey B. McIntosh, M.D., Lafayette, orthopaedic surgery.

Djavad Mollabashy, M.D., Terre Haute, anesthesiology.

Richard M. Moss, M.D., Jasper, otolaryngology.

Joseph H. Munning, M.D., Jasper, internal medicine.

Chris C. Naum, M.D., Indianapolis, pulmonary diseases.

Renu R. Pandya, M.D., Lafayette, psychiatry.

Thomas F. Peters, M.D., Indianapolis, cardiovascular diseases.

Matthew L. Powers, M.D., Indianapolis, diagnostic radiology.

Charles F. Presti, M.D., Fort Wayne, cardiovascular diseases.

Robert M. Shuman, M.D., South Bend, child neurology.

Donald G. Smith Jr., M.D., Wabash, family practice.

Barbara A. Smythe, M.D., Indianapolis, ophthalmology.

Bruce M. Sterman, M.D., Indianapolis, otolaryngology.

Randall L. Stevens, M.D., Terre Haute, family practice.

Caryn M. Vogel, M.D., Indianapolis, neurology.

Betty L. Walsman, M.D., Indianapolis, neonatal-perinatal medicine.

Steven L. Wise, M.D., Indianapolis, allergy and immunology.

Residents

Gregory E. Buck, M.D., South Bend, family practice.

Paul A. Conrad, M.D., Fishers, otolaryngology.

Grant W. Heinz, M.D., Indianapolis, ophthalmology. □

■ obituaries

Josephine F. Murphy, M.D.

Dr. Murphy, 81, a retired South Bend family practitioner, died Oct. 16 at St. Joseph's Medical Center in South Bend.

She was a 1936 graduate of the Indiana University School of Medicine and also graduated from Purdue University's School of Pharmacy.

Dr. Murphy delivered more than 6,000 babies during her 37 years of practice. She had served as physician for Camp Millhouse, Circle of Mercy Day Nursery and the former well-baby clinic of the Visiting Nurse Association and was a board member for Camp Fire Girls. She retired in 1973.

J. Paxton Powell, M.D.

Dr. Powell, 78, a former Marion general surgeon, died Oct. 16 in Boswell Hospital in Sun City, Ariz.

He was a 1942 graduate of the Indiana University School of Medicine.

Dr. Powell was a general surgeon in Marion for 36 years before retiring in 1981. He was a fellow

of the American College of Surgeons and the International College of Surgeons.

Katherine K. Rice, M.D.

Dr. Rice, 84, a retired South Bend psychiatrist, died Oct. 5 at Memorial Hospital in South Bend.

She was a 1941 graduate of Johns Hopkins University School of Medicine.

Dr. Rice, who was born in Bisttingen, Germany, practiced in South Bend since 1961.

Ronald D. Roberts, M.D.

Dr. Roberts, 46, a Columbus, Ind., pulmonary disease specialist, died Oct. 14 at his home.

He was a 1974 graduate of the Medical College of Ohio in Toledo, which presented him the Upjohn Achievement Award in 1974. He was a U.S. Army veteran.

Dr. Roberts had held several positions at Bartholomew County Hospital including chief of the department of medicine and chief of the medical staff. He was a fellow of the American College of

Chest Physicians and a member of the American Thoracic Society, the American College of Physicians and the Indiana Thoracic Society. He was certified by the National Board of Medical Examiners and the American Board of Internal Medicine.

Jack M. Troy, M.D.

Dr. Troy, 74, a Beverly Shores pediatrician, died Oct. 6 at Northwestern Memorial Hospital in Chicago.

He was a 1942 graduate of the St. Louis University School of Medicine and a veteran of World War II.

Dr. Troy had been a pediatrician at the Whiting Clinic since 1948 and was a physician for the Special Olympics in South Bend. He was on the staffs of St. Margaret, St. Catherine, Munster Community and Children's Memorial hospitals. He was a member of the Hammond Pollution Control Board, the Environmental Health Committee of America and the American Academy of Pediatrics. □

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■ drug names

Look-alike and sound-alike drug names

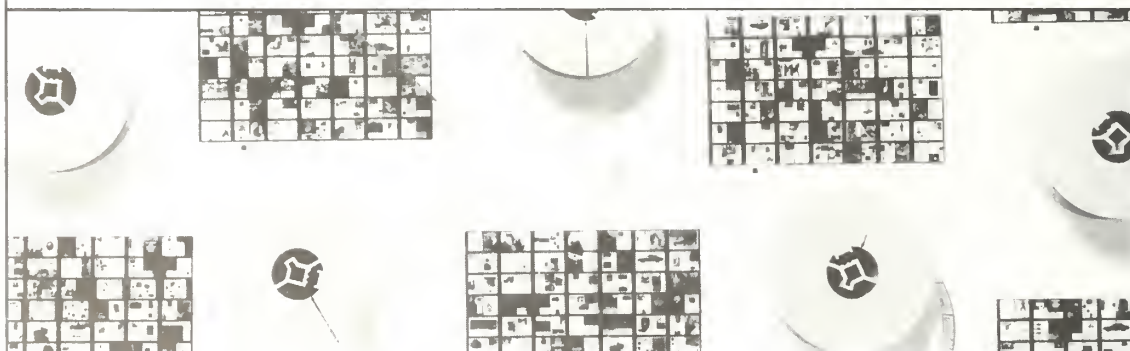
Category:	VONTROL	VOLTAREN
	Emetic	Nonsteroidal anti-inflammatory agent
Brand name:	Vontrol, SKF	Voltaren, Geigy
Generic name:	Diphenidol	Diclofenac sodium
Dosage forms:	Tablets	Tablets
Category:	VISINE	VISKEN
	Topical ocular decongestant	Beta-adrenergic blocking agent
Brand name:	Visine Eye Drops, Leeming	Visken, Sandoz
Generic name:	Tetrahydrozoline HCl	Pindolol
Dosage forms:	Ophthalmic sol.	Tablets

Benjamin Teplitsky, R. Ph.
Brooklyn, N.Y.

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Precautions: Verapamil should be given cautiously to patients with impaired hepatic function (in severe dysfunction use about 30% of the normal dose) or impaired renal function, and patients should be monitored for abnormal prolongation of the PR interval or other signs of overdosage. Verapamil may decrease neuromuscular transmission in patients with Duchenne's muscular dystrophy and may prolong recovery from the neuromuscular blocking agent vecuronium. It may be necessary to decrease verapamil dosage in patients with attenuated neuromuscular transmission. Combined therapy with beta-adrenergic blockers and verapamil may result in additive negative effects on heart rate, atrioventricular conduction and/or cardiac contractility; there have been reports of excessive bradycardia and AV block, including complete heart block. The risks of such combined therapy may outweigh the benefits. The combination should be used only with caution and close monitoring. Decreased metoprolol and propranolol clearance may occur when either drug is administered concomitantly with verapamil. A variable effect has been seen with combined use of atenolol. Chronic verapamil treatment can increase serum digoxin levels by 50% to 75% during the first week of therapy, which can result in digitalis toxicity. In patients with hepatic cirrhosis, verapamil may reduce total body clearance and extrarenal clearance of digoxin. The digoxin dose should be reduced when verapamil is given, and the patient carefully monitored. Verapamil will usually have an additive effect in patients receiving blood-pressure-lowering agents. Disopyramide should not be given within 48 hours before or 24 hours after verapamil administration. Concomitant use of flecainide and verapamil may have additive effects on myocardial contractility, AV conduction, and repolarization. Combined verapamil and quinidine therapy in patients with hypertrophic cardiomyopathy should be avoided, since significant hypotension may result. Concomitant use of lithium and verapamil may result in a lowering of serum lithium levels or increased sensitivity to lithium. Patients receiving both drugs must be monitored carefully. Verapamil may increase carbamazepine concentrations during combined use. Rifampin may reduce verapamil bioavailability. Phenobarbital may increase verapamil clearance. Verapamil may increase serum levels of cyclosporin. Verapamil may inhibit the clearance and increase the plasma levels of theophylline. Concomitant use of inhalation anesthetics and calcium antagonists needs careful titration to avoid excessive cardiovascular depression. Verapamil may potentiate the activity of neuromuscular blocking agents (curare-like and depolarizing); dosage reduction may be required. Adequate animal carcinogenicity studies have not been performed. One study in rats did not suggest a tumorigenic potential, and verapamil was not mutagenic in the Ames test. Pregnancy Category C. There are no adequate and well-controlled studies in pregnant women. This drug should be used during pregnancy, labor, and delivery only if clearly needed. Verapamil is excreted in breast milk, therefore, nursing should be discontinued during verapamil use.

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